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"There Has Got to Be a Better Road"

An Assessment of
Erosion Control and Sediment Collection Dams
In the Rio Puerco Watershed

Prepared by:
The National Applied Resource Services Center
(NARSC)
January, 1999

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Executive Summary

This report describes the results of efforts to collect information on dams in the Rio Puerco drainage for Bureau of Land management's (BLM) facilities maintenance needs report. The goal was to visit as many dams as possible in order to collect and report current maintenance costs, identify any problems and make suggestions for corrective maintenance.

Originally, these dams were built to decrease the damages of flood flows; store silt; prevent lateral erosion; improve grazing conditions, and maintain the health of the area. We visited 191 dams built between 1949 and 1971. Twenty-seven (14%) of the dams are in fair condition but need routine maintenance. Ninety-seven dams need corrective maintenance to make them operational. We found 67 dams that had totally failed (35%) although a few of these dams have unprofessional temporary patches. There have been a total of 647 dams constructed in the basin (247 retention dams, 119 detention dams and 281 diversion dams and dikes). There were eleven more dams that we would have liked to visit and did include standard corrective maintenance costs based on past inspections and now this experience. The monies calculated in this exercise for routine and corrective maintenance do not reflect the maintenance costs of these other dams. Accessing the larger dams gave us opportunity to see a number of these other dams and they are part of the problem and the solution.

I personally recommend that further inventories and condition surveys be made to better understand historic and present conditions of the dams. I recommend soil scientists make assessments of the upland soils and their stabilization. I recommend the use of science and technology to map the entire system and help identify its overall design. This will help identify ways to relieve stresses to the land's health. Then by working cooperatively with other agencies and colleges the BLM could develop consensus goals, plans, and collaborative approaches to determine the future of these dams. Only then can BLM make realistic cost estimates of the corrective maintenance that should be done.

Introduction

In 1998, each Bureau of Land Management (BLM) State Office was to provide information on their facilities maintenance needs for a Bureauwide report. As the year and the busy summer field season progressed, several States Offices were having difficulties collecting information and reporting all of their recognized maintenance needs. BLM's New Mexico State Office requested assistance from the National Applied Resource Sciences Center (NARSC). I traveled to New Mexico to help make condition surveys for earth embankment dams in the Rio Puerco watershed. The New Mexico State Office supplied help at the local level to assist in the effort.

The goal was to visit as many dams as possible in order to collect and report current maintenance costs. There are 647 dams constructed in the basin (247 retention dams, 119 detention dams and 281 diversion dams and dikes[1]). We were to review the findings of a set of several past condition surveys, which were provided by the Albuquerque Field Office, and to note significant changes. We visited 191 dams built between 1949 and 1971. Twenty-seven (14%) of the dams are in fair condition but need routine maintenance. Ninety-seven dams need corrective maintenance to make them operational. We found 67 dams that had totally failed (35%) although a few of these dams have unprofessional temporary patches. We did not visit 11 dams on our list but I did include standard corrective maintenance costs in the database.

Originally, these dams were built to decrease the damages of flood flows; store silt; prevent lateral erosion; improve grazing conditions, and maintain the health of the area.[2] Although the dams were large and obvious, many are located in remote areas. The access roads to the dams reflect current conditions as much as the dams themselves and the impact of the dam. Where the dams continued to work the access was available. Where the dams were no longer working as designed, we had trouble gaining access. My assistant and I often found ourselves saying to each other, "There has got to be a better road." Only when we found the dam did we realize why access was so difficult. The cost of not maintaining these structures made our job more difficult.

In addition to noting the current conditions, I was asked to identify any problems and make suggestions for corrective maintenance. BLM's New Mexico State Engineer, the engineers in the Albuquerque Field Office, and the employees in the Cuba Field Office all recognize that the earthen dams in the Rio Puerco are in bad shape as a result of deferred maintenance, and they have made repeated attempts to get help. And now, the requirements for gathering information for the national report provided an opportunity to add specific numbers based on specific dams and conditions. The assignments created an atmosphere of "the more work you do creates more work to do." Finally, we ran out of time.

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[1] Bureau of Land Management, Environmental Assessment for the Rio Puerco Dam Maintenance Project, Environmental Assessment Number: NM-017-93-33, Albuquerque, New Mexico, 1993.

[2] In specific areas some dams were built to protect Indian farmlands in the lower part of the basin, and provide a source of domestic and irrigation water for the Indians.

As a result of the field visits, quantities for estimating the costs of needed maintenance work were supplied. These quantity estimates were based on the furnished dimensions and information. New information was gathered when there had been structural changes since the last inspection. In some cases, detailed quantities were lumped into larger "units" to keep the quantities uniform and to make cost estimating easier (examples: rehabilitate an inlet or an outlet structure). Actual costing of the needed maintenance and data entry of the inventory data and maintenance data were accomplished by others.

This field exercise revealed a large amount of useful information. As the exercise progressed, the amount of information swelled and became difficult to manage. Getting the information into the database became a large task. At my suggestion, the information was captured in the field and standardized as much as possible. The standardized information was used to make uniform cost estimates and all of the information was then converted into the required database.

Finally, I was asked to make a report of my observations and recommendations. This report describes the task accomplished, summarizes the field findings into a broader perspective, and documents specific dam conditions and recommendations.

Geological features of the southern skyline of the Rio Puerco drainage basin.
Picture 1 through 5, looking south at the basin and skyline panorama

Recommendations

There are dams that need fixing. However, the reasons that the dams need fixing reflect a basinwide problem. The problem is an ecosystem challenge. The dams are only a piece of the solution. To repair a dam without stabilizing the soils that are filling it up is only challenging the system to wash it out again. However, now we have opportunities to look at the entire system and work on fixing the system concurrently with fixing the dams. I choose to make the following recommendations because of the complexity of the problem and the current opportunities. I have categorized these recommendations into policy, priorities, and problems.

Policy

These recommendations are based on the goals in BLM's "Blueprint for the Future." The challenge is to take a rather broad policy statement and apply it to a specific resource in a specific location. The structural dams and dikes in the Rio Puerco are resources that have past, present, and future values. They are part of an integrated, interdisciplinary plan to maintain a healthy ecosystem. The dams and dikes were built as part of an overall plan to preserve the long-term health of this area, and to prevent pollution of downstream areas. The restoration of long-term health of the land **in this area** is dependent on building and maintaining dams.

This is an area of checkerboard ownership, which makes the Blueprint goal of improving service to the public and encouraging sound use practices very important. BLM must become a better, more responsible neighbor:

- BLM constructed some of these dams to protect Indian farmlands and provide a source of domestic and irrigation water for the Indians.[3] Some of them may be located on Indian reservation land. Our responsibilities to our Indian neighbors must be clarified.

- We need to be held accountable for our responsibilities to prevent soil deterioration and erosion control that dates back to the Taylor Grazing Act of 1934. In this case our neighbors are downstream. We are responsible for classifying these wildlands soils and keeping the soils in place. The historic facts on the amount of sediment that this basin can produce demonstrates the magnitude of this responsibility. It is the primary source for sediment in the Bureau of Reclamation's Elephant Butte Reservoir. BLM's responsibility is paramount to improve the accountability and responsibilities of the users.

The situation in the Rio Puerco watershed provides opportunities for collaborative leadership, which supports the Blueprint goal of fostering more inclusive decisions and better accountability.

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[3] Kennon, F. W., and H. V. Peterson, Hydrology of Cornfield Wash, Sandoval County, New Mexico, 1951-55, Geological Survey Water-Supply Paper 1475 - B, Prepared in cooperation with the U. S. Bureau of Land Management, United States Government Printing Office, Washington, 1960.

While I was in New Mexico, I was introduced to a large contingent of people who are well-acquainted with the unique problems of the watershed. These people are well-aware of the magnitude of problems associated with poor management. The Department of Agriculture (Forest Service and Natural Resources Conservation Service), other Interior Department agencies (Bureau of Reclamation, Bureau of Indian Affairs, and U.S. Geological Survey), the State government, and colleges all have avid interest in the watershed and how it is managed. I was approached to cooperate with the USGS and Colorado State University (CSU) in a study of past management practices on the Rio Puerco. NARSC would be available to assist in any collaborative partnerships, but the leadership needs to come from the New Mexico State Office.

Priorities

My top-priority recommendation falls under the Blueprint goal of improving human resource management. Ecosystem management in this area will be a challenge. The Albuquerque and Cuba Offices need to expand their skill mixes in areas of complementary expertise, and provide additional training for existing personnel. I would recommend that Mr. Johnny Chavez and other staff (volunteers) complete the Safety Evaluation of Existing Dams (SEED) training at their earliest convenience. They could be making condition surveys as part of their regular routine. Mr. Chavez, in particular, has helped make these surveys and he has seen the ultimate damage that can occur if conditions are not reported and corrected.

Second, I recommend that this expanded staff gather the information to better understand historic and present conditions of the lands and dams; use science and technology to identify and relieve stresses to the land's health; and work cooperatively with other agencies and colleges to develop consensus goals, plans, and collaborative approaches. Ms. Stephanie Phippen, CSU, has approval to do her masters thesis on land management practices in the Rio Puerco Watershed. Working with her and the USGS in a study of past management practices on the Rio Puerco is an example of such collaboration opportunities.

Thirdly, an overall evaluation of the effectiveness of the dams and their future is needed. If repair of any of the dams would not contribute to an overall plan, those dams should be dropped from consideration and the priority given to more effective dams.

Finally, an interdisciplinary team should be making the decisions on the priority ranking of the repair of the dams. This ranking can consider the results or other current activities by the soils program and, if pursued, the results of Ms. Phippen's findings. These are examples of sources that could be used in making priority decisions and I am sure that there are others, such as the Natural Resources Conservation Service and the State government.

Problems

While I was looking at the condition of these dams, I quickly discovered many reasons for their condition and I would like to share some of the examples.

Since 1927, there have been scientists making recommendations for the management of the Rio Puerco watershed.[4] Simply put, upland watershed management and construction of structural control devices has been consistently recommended. If upland watershed management is achieved, the stresses on the dams and dikes will be relieved and eventually they will become a part of the land.

During the period of 1950 to 1960, the USGS, in cooperation with the BLM, conducted a 10-year study on the Cornfield Wash area.[5] During this study, they looked at land management practices as well as the effectiveness of the dams. They found that: "The reservoirs are effective in inducing sediment accretion upstream; also, they stop the advance of abrupt headcuts below the reservoirs, but only as long as the spillage is not great and the spillway stays intact. In addition, the reservoirs are effective in reducing flood peaks." They also found that the dams had impounded 390 acre-feet of sediment in the study period, or almost one-half of their total capacity. It is no wonder that 30 years later the dams are full! I have included a modified map of the Cornfield Wash that was originally made during this study. Today, several of the dams in the study did not qualify for condition surveys because of their loss of capacity. Of the ones that we looked at, 75% were unsatisfactory.

The prevailing problem seems to be overemphasis of one program to the detriment of another. When I inquired about the history of these projects, the current institutional memory stated that most of these dams were built under a the authority of the Rio Puerco Project[6] that involved special funding. It is my experience that over half of the dams we looked at were built in the 1950's. Whatever the emphasis before the Rio Puerco Project, it changed in the 1970's. When the emphasis was shifted from building the needed structures to implementing complementary grazing management,[7] several things changed. When the Rio Puerco Project ended, so did the additional money that was coming into the area. With the emphasis on vegetation and grazing practices, any available money was spent there, as the dams were assumed to be in good shape.

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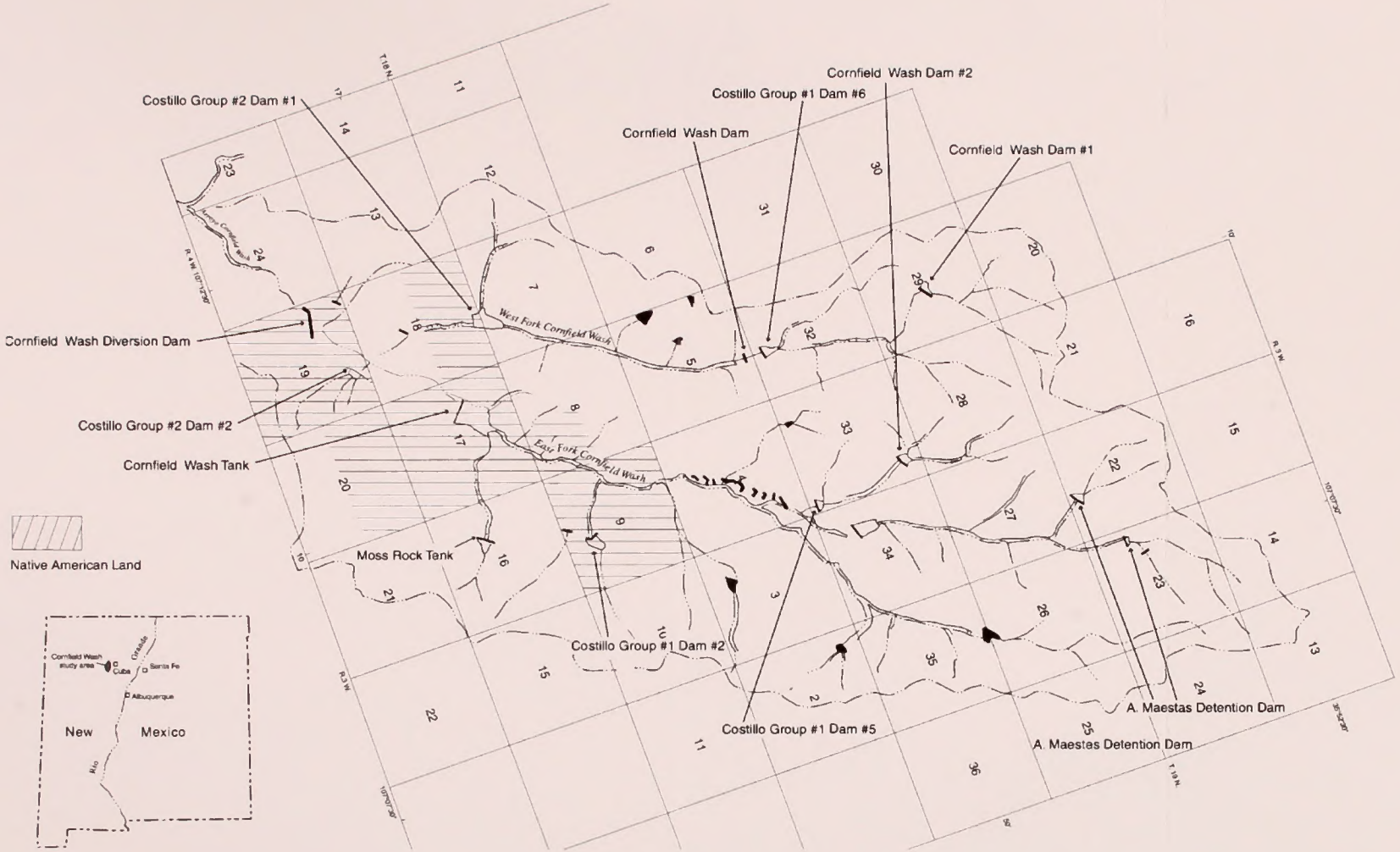
[4] Bryan, Kirk and George M. Post, Erosion and Control of Silt on the Rio Puerco, New Mexico, Report to the Chief Engineer, Middle Rio Grande Conservancy District, Albuquerque, New Mexico, October, 1927.

[5] Burkham, D. E., Hydrology of Cornfield Wash Area and Effects of Land-Treatment Practices, Sandoval County, New Mexico, 1951-60, Geological Survey Water-Supply Paper 1831, Prepared in cooperation with the U. S. Bureau of Land Management, United States Government Printing Office, Washington, 1966.

[6] Bureau of Land Management, Rio Puerco Project, United States Department of the Interior, New Mexico State Office, 1963.

[7] Bureau of Land Management, Rio Puerco Special Project Evaluation Report, Department of the Interior, Sante Fe, New Mexico, 1972.


Costillo Group #2 Dam #1
Cornfield Wash Dam #2
Costillo Group #1 Dam #6
Cornfield Wash Dam
Cornfield Wash Dam #1
Cornfield Wash Diversion Dam
Costillo Group #2 Dam #2
Cornfield Wash Tank
Native American Land
Moss Rock Tank
Costillo Group #1 Dam #2
Costillo Group #1 Dam #5
A. Maestas Detention Dam
A. Maestas Detention Dam
West Fork Cornfield Wash
East Fork Cornfield Wash
Cornfield Wash study area
Cuba
Santa Fe
Albuquerque
New Mexico

The grazing management plan recognizes the policy and need for care and maintenance of the dams,[8] but when money is short, it is allocated to the highest priority. I observed that there is no common opinion about the dams except that they are a problem. Different levels of understanding are causing different opinions and controversy about these dams - the reasons they exist, their present values, and their future.

This points out another problem. The dams were built for benefitting resources. However, the complexity of the dams requires the involvement of engineers in their physical assessment and care. During this effort to estimate maintenance costs for these dams, I have discovered:

- As the larger dams collect sediment, the loss of capacity may allow them to be dropped from the inventory and the tracking of the maintenance needs.

- Many of the benefiting resources do not have an inventory or maintenance system like this one that has been created for the use of the engineers.

- In the Rio Puerco basin, every small check dam, diversion dam, spreader dam, and drop structure works as part of the overall system.

- Maintenance of these smaller structures protects the larger structures and should be considered as part of the overall maintenance needs.

- There is no overall database to reflect to the local manager all of the maintenance needs in the basin.

Without an overall assessment of the total system including range and soils management coupled with an assessment of the small structure effectiveness and the larger dam effectiveness, the BLM manager is handicapped. Without an integrated inventory system and maintenance costs, the manager cannot even argue for the realistic cost to stabilize the ecosystem.

Using scientific principles to build an ecosystem assessment of the current conditions can relieve this problem, particularly if it scientifically demonstrates where available money is to be spent in each subwatershed, as well as the priorities for each subwatershed.

One smaller problem that must not be overlooked is an issue of safety. I find that safety is divided in the BLM. There is a "Safety of Dams" and a "Safety of Field Operations" issue. Both of these topics must be addressed. Most of these dams were not designed to hold water over lengthy periods. However, homemade modifications may be changing the operations of the dams away from our original intent. Secondly, our neighbors are using the dams and spillways for

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[8] Bureau Of Land Management, Draft Environmental Statement, The Proposed Rio Puerco Livestock Grazing Management Program, Department of the Interior, New Mexico, July 22, 1977.

roads and access. Not only is this practice destroying the dams but at issue is liability for accidents whether the dam is dry or flooded. Thirdly, as some of these dams have failed, they have created dangerous situations for wildlife, livestock and humans.

I have recommendations regarding these problems that I have listed:

- I recommend investigating safety issues first and stabilizing massive erosion at existing structures as soon as possible. The safety issues should be looked at from the perspectives of "Dam Safety," "Field Safety" and liability for our neighbors.

- Next, I recommend a thorough assessment of the historical and existing situation in accordance with the Blueprint's goals, including "integrated" science.

- Third, I recommend starting a scheduled maintenance plan to protect all of these structural resources including dikes and drop dams.

- Fourth, I recommend taking care of the soil in each subwatershed, which is consistent with management planning and is necessary to relieve stresses on these structural tools. Such care includes implementing better soil mapping and condition surveys (which are much less expensive now), vegetation control, grazing practices, and using all "upland" management practices with available existing resources before patching unsatisfactory structures. Stabilizing the soil and watershed will slow down the failures of these dams.

- Finally, as interest can be generated through collaboration and partnerships, any new monies generated should be devoted to cleaning up the unsatisfactory structures.

Considerations

Although it was not formally planned, we looked at the dams with easy accessibility first. As time passed, we progressed to dams that had more difficult access. When we ran out of roads, we cut across country. When it became too difficult for a four-wheel drive, we used All-Terrain Vehicles (ATV). There were a couple of dams where conditions forced us to walk. Finally, there were five dams with locked gates that prevented access, and several that would take hours to reach the dam.

Cost Estimates

I was asked to provide unit quantities for estimating the costs of needed maintenance work. This was accomplished by using the dimensions and information shown on the "Bureau of Land Management Dam Inventory Record" that was provided. These inventory sheets were made by Bureau of Reclamation employees who made condition surveys in 1983-1984 under contract to the BLM. It appears that this information reflects the findings in 1983-1984 and may not reflect the original dimensions of the dam. Necessary information was copied from the sheets to a Microsoft Excel spreadsheet to derive the quantities.

On August 6, 1998, it was decided that the spreadsheet could be used to calculate cost amounts if standard costs could be derived for the spreadsheet calculated quantities. There were some typical maintenance and corrective assumptions made to guide the cost estimates. These are summarized here for the record:

Reporting:

As required, every failure that has been discovered needs to be investigated and reported. This may require surveys, investigations, and documentation beyond what has been done during this present effort. This investigation will document safety hazards to animals and humans. We saw dams that had huge cavities where livestock, wildlife, and hikers could be severely injured. We actually found livestock (cattle and horses) trapped and dying in abandoned stilling basins. The quantity estimate was one for every failure or condition rating of unsatisfactory. The cost was based on an engineer's and technician's time: the engineer for one week and the technician for two days.

Routine Maintenance:

Vegetation. Essentially every dam visited needs routine clearing of brush and trees from the faces and spillways . Rabbitbrush and saltcedar trees are hard to eradicate and the process should start immediately. The surface area of the dam divided by 1,000 provided a standard quantity in units of thousands of square feet (MSF). The cost of treatment was estimated to be $200/acre.

Barrel. Several of the dams need the intakes and outlets cleared to make the dam operational again. The number of inlets and outlets was the quantity. Costs estimates of $1,000/per unit were used realizing the move-in/move-out costs would be higher for a single unit, but cheaper for multiple units in an area.

Rodents. If the previous condition survey or the present effort found rodents, it was considered a unit quantity. Rodent control is more dependent on several site visits rather than on the cost of treatment. We used $600 for each unit as a base figure.

Spillway. Several of the dams need their spillways and channels cleared of brush and debris. This should occur as part of vegetation control on the dam itself. Without move-in and move-out costs, the base estimate was another $1,000/spillway. The spread sheet has columns for calculating spillway area if better figures are needed.

Safety. We found safety issues that should be investigated further. In some cases county roads and pipeline roads quite often cross through spillways or crests. Full reservoirs pushing water into the spillways could create safety issues. Another case is where full-time residences have been built downstream of the dam or existing houses are actually used only part-time throughout the year. Either of these cases (roads or dwellings) should be investigated and documented. In each case, we added $500 for a cursory investigation and documentation. We need to mechanically break any arches that remain over a cavity to reduce the hazard of its collapse when wildlife, livestock, or humans are unsuspecting. In these cases, the $500 is toward collapsing the arches.

Condition Surveys. With 647 dams and dikes in the jurisdiction of a field office, someone needs to be tracking the costs of mandatory condition surveys. We added $400 for all dams not in the "unsatisfactory condition" category for an engineer and a technician to make surveys at least every three years.

Rehabilitation:

Engineering. I estimated time for an engineer to locate the as-built drawings for each dam (presumably in Albuquerque). Knowing how the dam was originally built, an engineer and a technician could gather actual physical dimensions and elevations from the field. This information, when compared, will allow calculations to be made concerning the performance of the dam, the remaining capacity, the effectiveness of the dam, how much sediment is being collected, and the **recommended modifications** of the dam.

While in the field, **core drilling** (auger holes drilled across the downstream toe) can be accomplished to determine if saltcedar has created underground conduits under the dam. Several hours of two people's time was used and a modest $500 for each dam that has saltcedar and other indications of underground seepage. With all of this information, a qualified engineer can make written recommendations for the future of each dam - whether it

should be removed, rehabilitated and perhaps raised, or stabilized with breaching and drop structure. Engineering time (with technician time as necessary) is estimated to cost $1,600 per dam.

Preparation. Once the management decision has been made on the future course of action, preparation for rehabilitation will require a **cultural resources inventory**, construction of **protective fencing** where required, **design and construction of necessary roads**. Cultural resource inventory was estimated at $1,300 per dam. Fencing quantity was established as 1000 feet of fencing over twice the length of the crest, which gives an allowance for the machinery to easily navigate. Cost estimate was based on $5000 per mile of fence. Road lengths were made from actual experiences of trying to get to the dams. For roads, the cost estimate used was $5,000 per mile.

Typical Rehabilitation. Rehabilitation work will require guidance provided by **engineering control** in the form of control stakes, cut and fill stakes, and asbuilt information for drawings. Engineering work estimates did not include time for this function.

The costs to **excavate sediment** from the upstream face of the dam and expose the inlet structures could be accomplished in-house. However, estimates were made with move-in/move-out costs, excavation based on the volume of the crest length and a triangle of 6 by 12-foot. Only a portion of the crest length will need to be evacuated, but the amount of sediment will be dependent on the accumulation of sediment and I am guessing that it will average more than three feet deep. Costs are from the "Means Estimating Manual" at $1.92/sq. yd., plus $50.00/hour times 16 hours for move-in/move-out. The effort to **fine grade** and remove weathered fill and debris from all faces of the dam was estimated from the total surface area of the dam. Costs from "Means Estimating Manual" is for steep grading at $0.16/sq. yd plus move-in/move-out.

The task of rebuilding the **inlet structure** to accommodate additional fill was based on manufacture of the inlet off site and installation in the field. Each one was estimated at $2,007 without concrete work. It was harder to find a common unit for the task of rebuilding the outlet structure. As described in the Considerations section (this report), there are several alternative fixes depending on the situation. I used $1,000 as an average unit cost.

It has been recommended that a **new upstream face** will be necessary if drop structures are ruled out. The upstream surface with a horizontal blanket of 8 feet placed in small layers and compacted to optimum density was estimated by adding excavation, hauling, spreading, and compaction. The cost estimate was $5.00/cu. yd.

Unsatisfactory Dams. The cost of stabilization of a dam by breaching the structure and installing a drop structure was estimated at $50,000/per drop structure.

FIMMS Estimates:

After the spreadsheet was prepared and submitted the quantity and cost estimates were not completely conveyed into the Facility Inventory Maintenance Management System (FIMMS). The system has controlled fields which are common to all users. Required fields include BLM ID numbers, which several of the detention dams, drop dams, and dikes lacked. All of the information on these dams were lumped into a single dam without a number and subsequently dropped. This exercise generated several quantities and costs unique to New Mexico dams. When it was time for conversion, most of the engineering costs were lost, as were costs for rodent control, core drilling, cultural surveys, and roads. Conversations after the fact have disclosed that other states have some of these common items and are submitting them as best as they can. Now that the initial New Mexico submission is in, these matters should be entered and added on to New Mexico's database.

The Director, BLM, is requiring use of FIMMS and entering and reporting on all corrective maintenance needs. I offer the team's effort to be used as a basis for future efforts. I was not aware of other efforts throughout the past 12 years that were not used in this exercise. I now have a dam safety database built about 1986 with much detail about some of the design criterion for many of these dams. The Cuba Field Office worked hard in making a condition survey on many dams in 1983. This information was collected but was not further evaluated or captured in FIMMS. These past efforts contain very usable information. Information management is one of the goals of the Blueprint. I believe the use of a spreadsheet for the management of engineering information complements the database organization of baseline information.

Dams

Diversion Dam

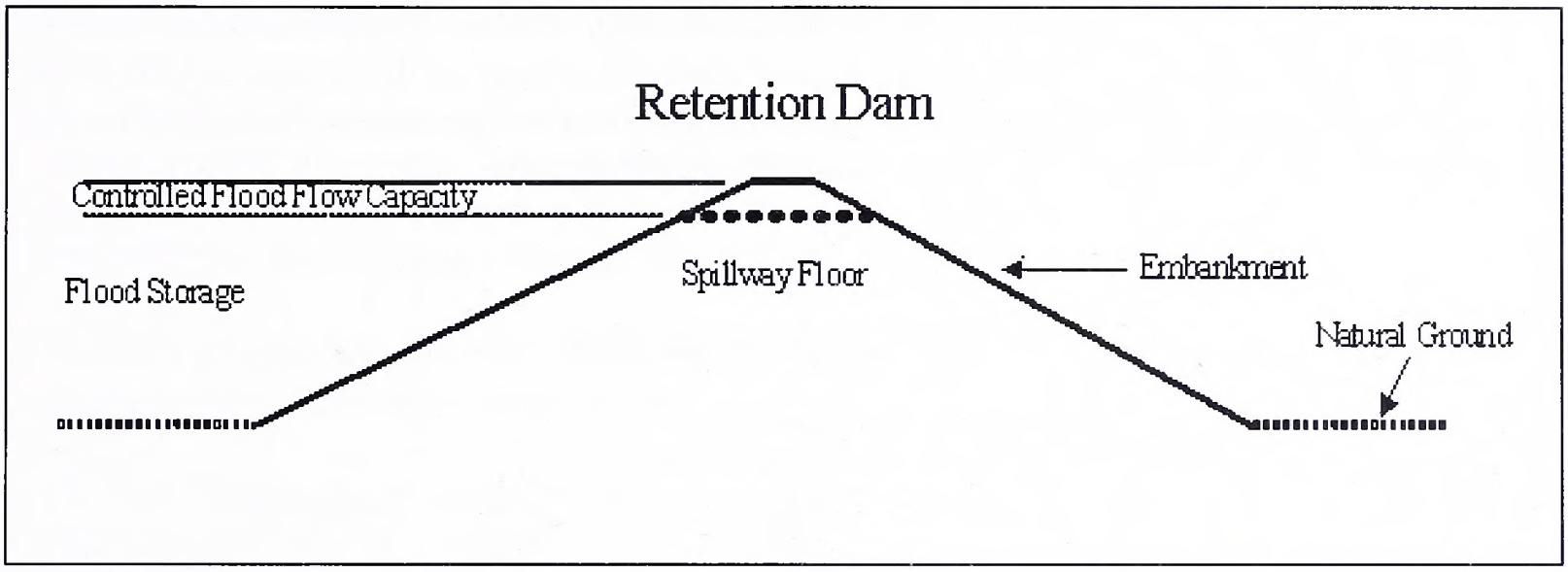
A diversion dam is designed to modify the direction of flow of water and not designed to retain a permanent pool of water.

Drop Dam

A drop dam is designed to release water from one elevation to a lower elevation, dissipating the force of falling water, and is used to stabilize channels where channel gradients are steep and active headcutting is a result. A drop structure stores no water except during a flood event.

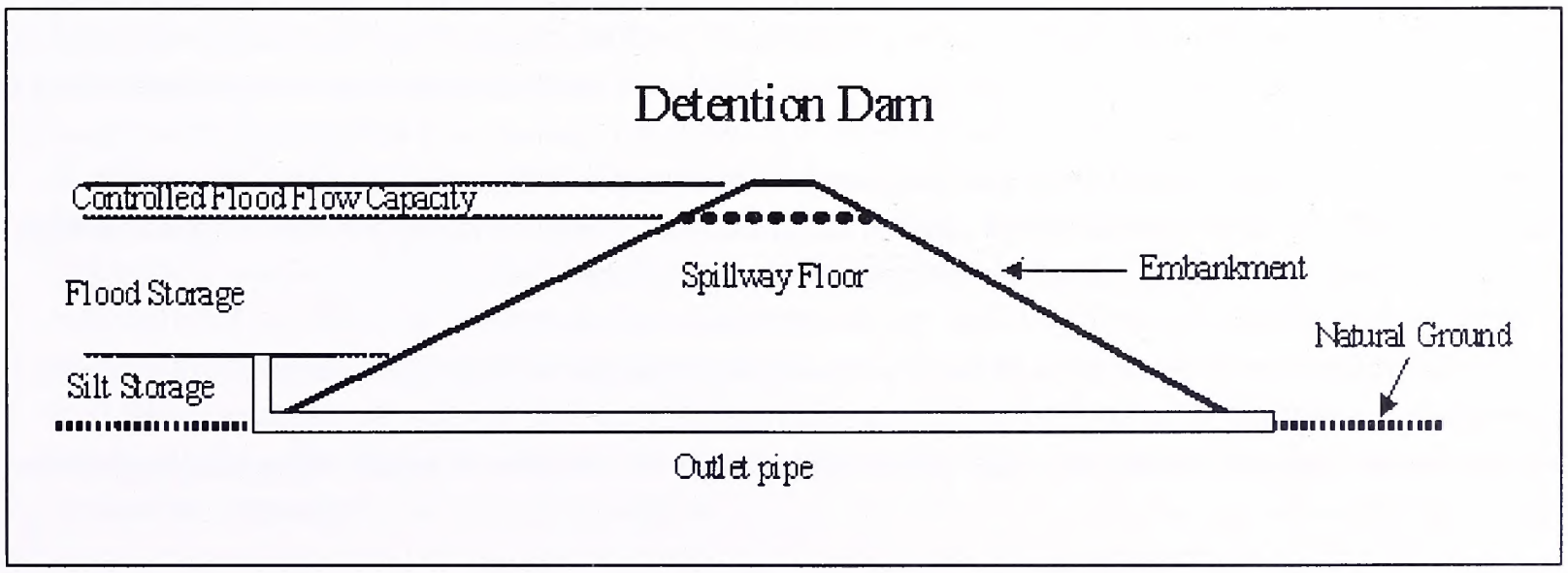
Retention Dam

A retention dam retains watershed runoff to provide water for livestock and wildlife. These dams usually have no outlets other than emergency spillways.



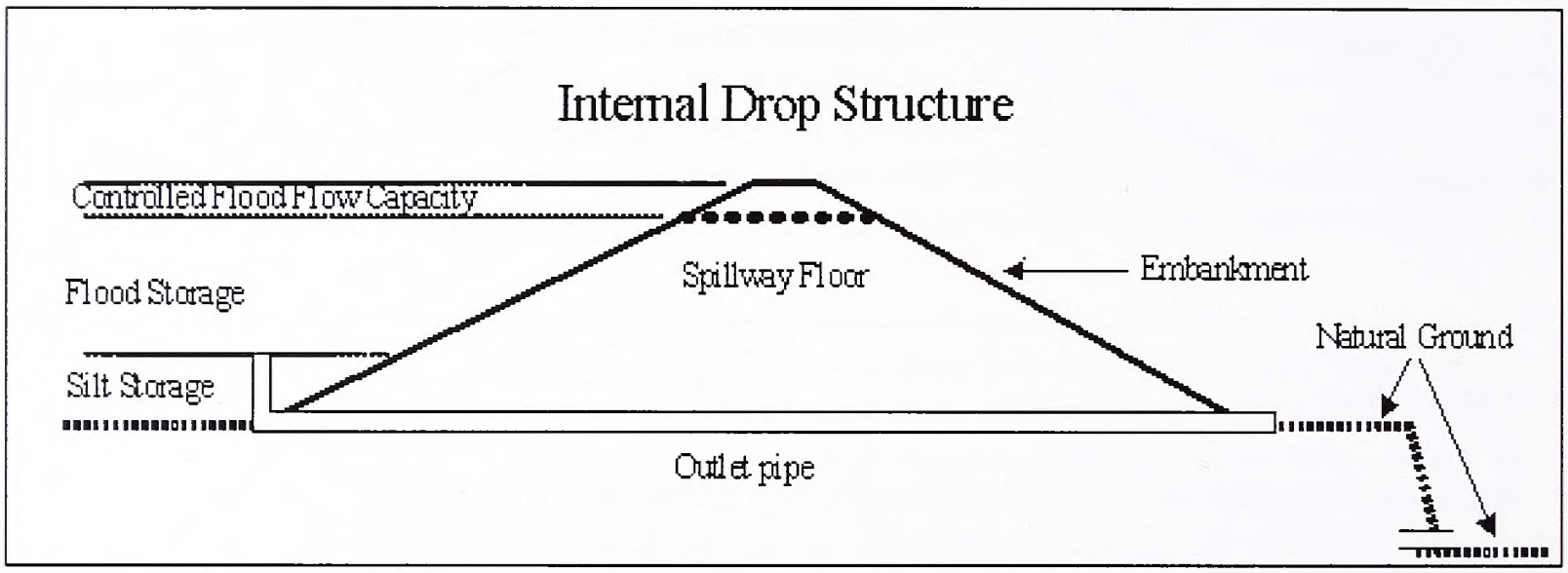
Detention Dam

A detention dam controls runoff by holding back a certain designed flood event without the use of an emergency spillway. It also uses an outlet to release flood runoff over a designed period of time (5 to 10 days) reducing peak flows to protect downstream areas. Drawdown of the designed flood event over the 5 to 10 day design period slows and mitigates the force of flowing water, greatly reducing the transport of sediment to downstream areas. (Those dams in the Cornfield Wash area were designed to release at rates that would cause the least erosion in the channels below.) The downstream end of the pipe is located on the channel bottom so the energy of falling water is dissipated. Upstream progress of any headcut stops at the dam. Detention dams are designed to store little or no water except during and immediately after a flood event. Detention dams may be designed with certain "dead storage," but this area is expected to fill with sediment within 25 years.



Internal Drop Structure

Some of the dams were designed as a detention dam and a drop structure combined. Within the design and development is a closed drop structure that consists of running the outlet pipe down into the channel and releasing the water onto the floor. I call these an "internal drop structure." One of their problems is that the headwalls and conduit extend beyond the compacted fill of the actual dam and enter a natural surrounding environment that now has rodents, trees, bushes, and erosion that is not technically part of the constructed dam structure.



Judgments

Condition Classification. Standards in the BLM Manual Section were used. Specifically, the definitions on page 62 of "Guidelines For Performing Condition Surveys For Earth Embankment Dams," Appendix 1 to BLM Manual Section 9177. Very specifically, I could not rank any dam as in Good Condition if there were too many bushes and trees hiding the embankments from clear assessment of their condition. I could not rank any dam as in Fair Condition if the inlet, outlet or spillway was impaired. I did not rank them as in Unsatisfactory Condition if general maintenance could make them operational (i.e., if they could be cleared or uncovered). In general, all of the structures should only be ranked as in Poor Condition until an engineering assessment is made of the current holding and spillway capacity. I ranked only those structures that have indeed failed as Unsatisfactory Condition. There were several that were not operational at the time of the former condition survey and it was noted that they were now "retention dams" instead of "detention dams," which is a dam type to avoid needed maintenance. I sincerely support the original design and importance of these dams which were not "retention dams."

Cultural Resources Inventory. Making a quantity estimate for cultural resources inventories is beyond my expertise. However, the "Environmental Assessment for the Rio Puerco Dam Maintenance Project" states that such an inventory is to be completed by BLM archaeologists for each dam site.

Embankment Rehabilitation (40.5) - Resurfacing slopes. Both faces of the dam need to be shaved and "dressed." This includes uncovering the upstream toe under the accumulated sediment as well as the inlet structure. An 8-foot blanket of new fill material can be placed on the remaining upstream face up and through the crest (this will form a new crest). This blanket can be used to gain more height, if the dam needs to be raised.

A. The upstream slope will have to be excavated several feet to expose the original surface. At a 3:1 slope, a cut three feet deep should be made at a nine foot width. Some dams this will be sufficient, on others the excavation will have to be deeper to expose the intake structures. I estimate that the average over 200 dams might be a three feet cut.

B. The upstream and downstream slopes will be fine graded to remove weathered, infested, loose material. Quantity will be the surface area.

C. The new blanket of compacted fill will be on the upstream slope only. The fill will be placed in 8-ft wide by 12-inch lifts. Volume was estimated without the specifics of excavation of material, hauling, distribution on the lifts, grading, compaction, and fine grading.

Energy Dissipater (41.1) - Closed, open, attached or downstream. In these dams the control of destructive energy is a major concern. One of their primary functions is as erosion control - stopping the massive "headcuts."

A. Many of the dams were constructed immediately upstream from an existing headcut. Within the design and development is a closed drop structure that consists of running the outlet pipe down into the channel and releasing the water onto the floor. I call these an "internal drop structure." One of their problems is that the headwalls and conduit extend beyond the compacted fill of the actual dam and enter a natural surrounding environment that now has rodents, trees, bushes, and erosion that is not technically part of the constructed dam structure. I have chosen to consider that this area must be included in maintenance - I consider the environment as threatening the dam as it will eventually destroy the dam if unattended. Most of them need slope stabilization on three sides. I would recommend a horseshoe shaped drop structure around the conduit , if the engineering assessment and subsequent decisions are to restore the dam.

B. There are several cases where the soft sandstone spillway has been overused and invited a headcut to start attacking the basic structure at the outlet. In this situation the headcut will eventually win and destroy the dam because the sandstone is "soft." I recommend that at least two vertical walls be built through the sandstone in the spillway floor for stabilization. One suggestion is that these walls could be made of vertical conduit pipes drilled through the floor and filled with concrete, etc. More of these walls can be properly placed further downstream to slowly drop the water to safe levels. Secondary to the initial walls, a Gabion drop structure is another alternative for energy dissipation.

Engineering Assessment - Runoff calculations, design for necessary storage capacity, spillway capacity, and access roads. An engineering assessment of the future of the dam is necessary for management decisions. An engineer must assess the remaining capacity of sediment storage, volume of water that can be carried by the spillway, and bequest value. This is how to comply with the Runoff and Design paragraphs of "Environmental Assessment for the Rio Puerco Dam Maintenance Project."

Environmental Assessment. Many recommendations for needed maintenance were made to comply with the "Environmental Assessment For The Rio Puerco Maintenance Project," numbered NM-017-93-33. Extra tasks were listed even if they were not on the list of "Item" or "Material" codes for the Facility Inventory Maintenance Management System.

Fence (44.0). Although the "Environmental Assessment for the Rio Puerco Dam Maintenance Project" talks about 20 protected areas to exclude livestock from the structures, I recommend that all construction sites be fenced for security, for the protection of livestock and wildlife and to safeguard cultural resources from inadvertent damage.

Inlet (59.7) - Trash rack, riser pipe, digging out, raising. The outlet pipe needs to be extended approximately 8 feet upstream and raised an appropriate height determined by the engineering assessment. Most of these dams need resurfacing and therefore a standard inlet unit was proposed that would fix two problems simultaneously. The inlet unit involves acquiring a manufactured structure that is installed in the field. The manufacturer furnishes new coated CMP pipe, new support stanchions, and a new appropriate trash rack delivered to the BLM office. Manufacturing costs can be significantly reduced and protective coating applied if this is not assembled in the field. Engineering specifications will be developed for this manufacture, but it would be expected to cost hundreds of dollars each. I am assuming that the embankment rehabilitation will expose the old pipe and give room for the installation of the new manufactured unit. Field installation should therefore be kept to minimum costs.

Outlet (68.5) - Cleaning, pipe extension, rock gabions structures, etc. There are several alternative situations and therefore several suggestions.

A. The easiest solution is when the pipe simply needs to be dug out and the outlet channel cleaned.

B. Slightly more complex is where the pipe has developed its own stilling basin because the channel has built up sediment higher than the pipe outlet. Rather than excavating the channel, I recommend extending the outlet pipe on-grade until it has sufficient clearance to remain open.

C. If the initial outlet is in a secondary settling pond, this poses a dilemma that sediment must be removed or the pipe extended further downstream through the secondary dike. Rather than disturb the integrity of the dike structure, I would recommend sediment removal from the

secondary pond. This will be economical if the detention dam structure is restored to catching most of the sediment as it was designed.

D. In the case where there is an internal drop structure, it would be easiest to cut the outlet pipe at a higher location, install a new headwall, and construct a stilling basin for energy dissipation.

Riprap (74.4) - For wave action escarpment. A detention dam is designed to allow water to accumulate in the reservoir area only for a short period of time. When the outlet works are not working because they are plugged, water remains entrapped in the reservoir. Over longer periods the weather has more chances to cause wave action along the upstream surface. Retention dams expect this wave action and place a zone of riprap on the face to control the erosion. Because detention dams were not designed to hold water for long periods, they were not given a blanket of riprap along the high water zone. Consequently, the water erodes the sloping face, and if the problem is not corrected, could eventually erode the upstream face on through the crest and cause failure.

Roads (Access) - Engineering, culverts, water bars, grades, low water crossings. We are estimating this by the linear mile. Actual engineering design is necessary before specific components are known, but an average cost can be estimated. The design and construction should follow direction given in "Environmental Assessment for the Rio Puerco Dam Maintenance Project." I have included a schematic of the map coverage, the date of the map, and the number of sites on each map for reference. The estimates were made from these maps and if more current maps were available, the distances could be estimated more accurately.

Spillway, Emergency (84.5) - Cleaning, reshaping, or restoration. In some cases the spillway does not look like it has been used, in contrast with a few dams that are considered as failed because of spillway problems.

A. The simplest cases are where the spillway needs to have existing vegetation removed.

B. More often, the spillway needs to be fine graded, cleaning out erosion material that has sloughed into the spillway from the walls.

C. There are cases where erosional forces have ruined the sides of the spillway, which requires heaver equipment to reshape the walls. I recommend that slope protection be accomplished by sloping the natural wall at a lower incline, or cutting it back for room for a compacted berm, or creating a Gabion wall to protect the spillway.

D. A major repair is needed when the spillway floor has been eroded, mechanically cut for other purposes such as a road, or needs to be raised. Either a concrete sill or a Gabion floor must be "keyed" into the existing foundation. Compacted fill must be placed upstream and downstream to protect the concrete or Gabion structure. For consistent quantity estimating I

have estimated a concrete wall 4-feet by three feet by the width of the spillway. I am assuming that costs will be estimated, including excavation into the floor, forming, concrete, and compaction of a protective ramp upstream and downstream. The second part is the width of the spillway by the length of the cross section of dam by two feet for the cubic feet of compacted fill.

Quadrangle Maps Used

Fire Rock Well 1966 2 sites	**Lybrook S. E.** 1966 2 sites	**Mule Dam** 1966 5 sites	**Deer Mesa** 1966 5 sites	**Taylor Ranch** 1963 5 sites	**Arroyo Chijuillita** 1963 11 Sites	Cuba 1963 0 sites
			Ojo Encino Mesa 1961 1 site	**Johnson Trading Post** 1961 8 sites	**Mesa Portales** 1961 9 sites	**San Pablo** 1970 10 sites
			Tinian 1961 22 sites	**Wolf Stand** 1961 28 sites	**Headcut Reservoir** 1961 11 sites	La Ventana 1970 0 sites
			Canada Calladita 1961 5 sites	**Arroyo Empedrado** 1961 10 sites	**San Luis** 1961 17 sites	**Holy Ghost Spring** 1969 5 sites
		Mesa Cortada 1961 2 sites	**Cerro Parido** 1961 4 sites	**Guadalupe** 1961 11 sites	**Cabezon Peak** 1961 9 sites	**Ojito Spring** 1969 11 sites
						Sky Village NW 1960, 1978 5 sites

Vegetation Control (102.7) - Chemical and/or mechanical. I have based quantities by the 1,000 square feet, abbreviated as MSF. Direction for the control and reseeding is given in "Environmental Assessment for the Rio Puerco Dam Maintenance Project."

Vegetation

Fourwing Saltbush. This plant's roots will penetrate the fill material which destroys the integrity of the compacted fill, covers up other blemishes, and provides habitat for unwanted rodents. Because of its moderate tap roots, it will eventually leave holes in the dam. When this plant is found on a dam embankment or growing along the toes of a dam, there is cause for concern. This is a plant that indicates saline or alkaline soils and its presence should be a warning sign of potential saline ledges that may dissolve leaving the fill compromised. The brush can be destroyed chemically and should be - **after** their message is acknowledged and investigations are planned.

Juniper. This plant's roots will penetrate the fill material which destroys the integrity of the compacted fill, covers-up other blemishes, and provides habitat for unwanted rodents. Any of these plants growing on the dam or on the groins of the dam should be destroyed.

Rabbitbrush. This plant's roots will penetrate the fill material, which destroys the integrity of the compacted fill, covers-up other blemishes, and provides habitat for unwanted rodents. Because of its long tap roots that seek water, it will eventually leave holes in the dam. If this plant is found on a dam embankment or growing along the toes of a dam there is cause for concern. The brush can be destroyed chemically and this should happen as soon as possible.

Sagebrush. This plant will penetrate the fill material, which destroys the integrity of the compacted fill, covers-up other blemishes, and provides habitat for unwanted rodents. The brush can be destroyed chemically and this should happen as soon as possible.

Saltcedar. This plant's roots will penetrate the fill material, which destroys the integrity of the compacted fill, and covers-up other blemishes. Because of its long tap roots that seek water, it will eventually leave holes in the dam. When this plant is found on a dam embankment or growing along the toes of a dam, there is cause for concern. BLM's "Guidelines for performing Condition Surveys for Earth Embankment Dams" states that they indicate seepage or underground movement of water that cannot be observed on the surface of the ground. The plants can be destroyed and should be - **after** their message is acknowledged and investigations are planned.

Acknowledgments

Chavez, Johnny; Cuba Field Office

Johnny cut his vacation short in order to volunteer to help; he and his wife sacrificed other plans to put in the overtime to accomplish the project. He has excellent knowledge of where most of the dams were located and how to efficiently choose the routes that would get us to the dams. He has an "old fashioned" work attitude that made working with him a pleasure. He volunteered, learned new skills, and pitched in to get the job done faster. Besides finding the dams, he learned to capture the coordinates of the dams using the Global Positioning System - he used this for other resource people in the office. He diligently sought and found most of the past markers documenting the dams. He became proficient in finding the inlet structures and the outlet works. Shortly after realizing the objectives, he would use his skill of "dowsing" to find buried pipes and multiple drainage structures. He taught me a lot about vegetation, rodents, and past history of BLM work on each dam. At times when I was working on administrative things, Johnny entered data into the spreadsheet. The success of this project hinged on this man.

O'Haver, Brett; Cuba Field Office

Brett added a dimension of quality to this project. He became my consultant on several topics. It began by his explaining BLM's historical practice in the Rio Puerco, and sharing with me the 1993 Environmental Assessment for the Rio Puerco Maintenance Project. Brett had the skills and volunteered to inform me of the damages that certain local plants were having on the dams. At times he called on others in the BLM to get answers for me. Brett did courier work for the project. This included buying supplies and taking film to Albuquerque and actually coordinating with other BLM personnel. When it came time to make cost estimates, Brett furnished needed information on how to do vegetation control and how to estimate it as well as fences, revegetation, weed control etc. It was his interest and effort in getting accurate information into the project that added quality to this project.

Herrera, Danette; Cuba Field Office

Danette volunteered to do administrative functions for the project. She took messages, and used her computer to send and receive e-mail messages for me. She volunteered to make copies of the inventory forms for the State Office. She volunteered and did data entry on the spreadsheet. At the end she received permission to work overtime, but the work she did in her busy schedule throughout the project made most of the official communication happen.

Aragon, Flaviano; Cuba Field Office

Flaviano was a consultant to Johnny. He also has similar experience. Often, Johnny would talk to Flaviano about how best to get into remote places, who held the keys to gates, and current road conditions. Flaviano volunteered to guide another engineer if the project were to include more help. Flaviano made telephone calls for both Johnny and me when remote telephoning was unacceptable.

Englemoen, Bill; Bureau of Reclamation

Bill took the time to meet with me and discuss the technical aspects of fixing the dams in the Rio Puerco watershed. It was a confidence builder for me, and they shared several good ideas on ways to accomplish what was needed. Bill further became a consultant by telephone when I would need to objectively discuss what I thought might be a good idea, when I was reflecting on making quantity estimates, and when I was trying to make unit cost estimates.

Chavez, Earnest; Albuquerque Office

Earnest actually gave me work direction and arranged the field administration. It was Earnest who constantly promoted using field time to gather field information. His appreciation of our findings was our only encouragement, although Johnny and I enjoyed doing the job, if only, for job satisfaction. Earnest was the most useful to the project when it came time to furnish or approve the cost estimates. Although he did not have time to do this aspect himself, he furnished much advice and quickly approved the figures we used.

Case, Richard; National Applied Resource Sciences Center

Dick was my technical advisor. Having been on FEMA details, he provided advice on managing our time, when to seek consultants, and when the job was good enough. Although, his experience is not in earthen dams, he was a sounding board for my engineering assumptions and recommendations. Further, he volunteered the use of his staff, which was necessary for costing out the corrections. His attitude and encouragement was excellent support to this project.

Reeves, Vern; National Applied Resource Sciences Center

Vern took the time out of his schedule to offer advice concerning fixing mechanical works such as intakes and outlets. His suggestion to allow the craftsmen to manufacture the works before shipping it to the field for installation was excellent. And, at the last minute, Vern made the estimates of these costs. His attitude and willingness to participate was refreshing.

Lietzau, Gene; Colorado State office

Gene was my consultant for information about FIMMS. I asked him about converting information from spreadsheets to dBASE. I asked him for information about the structure of FIMMS, which he faxed to me for use by the New Mexico State Office personnel. He consulted on the phone when New Mexico was converting data from the spreadsheet to FIMMS. Finally, when others failed, Gene took the time to convert the spreadsheet information into FIMMS. With help from Larry Gebhart, Colorado State Office, the information was converted so that New Mexico would have a submission on the dams module of FIMMS. Gene's cheerful attitude of "getting the job done" allowed this project to be finished. It was not his problem, but he made the final things happen for completion.

Technical Findings

A. Lobato Detention Dam

BLMID - 1264, ID No. 20049, built in 1950. The map coverage used was the USGS quadrangle map "San Luis." Dimensions from the worksheet are 7.9' x 652' x 5'.

This dam is located on private land, and we did not gain access. The Condition Survey of November 11, 1983 reported the need for a trash rack, that the outlet was plugged, and the presence of saltcedar. Pictures of that date look like the dam had overtopped in the past.
Notes for spreadsheet entry: Outlet and saltcedar.

A. Maestas Detention Dam

These are my notes which were taken on July 12, 1998. The weather was warm and sunny. BLMID - 2031, Andrus Maestas Detention Dam. The map coverage used was the USGS quadrangle map "Wolf Stand." We were not given information on this dam.

Spillway discharges in the direction of a headcut that continues to cut toward spillway. The downstream face is clear. The upstream face was brushed last year.
Note for spreadsheet entry: Condition - F; spillway.

A. Maestas Detention Dam

These are my notes which were taken on July 12, 1998. The weather was warm and sunny. BLMID - 1206, Andrus Maestas Detention Dam, ID No. 20118, built in 1949. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 8' x 486' x 8'.

The embankment is in good shape. Marker and sign are gone. There is a road across the dam. The original spillway is on the left abutment. Someone has placed fill in the original spillway. There has been a new spillway cut through the right abutment. A 12-feet deep headcut is downstream 20-feet from the road.

The downstream face is clear of brush. The crest is not completely level and is gathering pockets of water discharging into rivulets. The upstream face has considerable more plants (fourwing saltbush) than downstream. There is a second headcut about 5 to 6-feet from toe of downstream side. There appears to be a slump about 2/3 across the way on the upstream face. It is covered with a green plant that I later came to know as fourwing saltbush. In the spillway there is a depression in the road (right abutment). Lots of "Cocaburra" plants.
Note for spreadsheet entry: Condition - P; spillway, slump and fourwing saltbush.

Access Road

These are my notes which were taken on July 26, 1998. The weather was warm and clear. BLMID - ????, ID No. ????. The map coverage used was the USGS quadrangle map "Holy Ghost Spring." We were not given information on this dam.

Just to right (off right abutment) of Rio Salado North (RSN) Detention Dam # 43, ID No. 20015, is another small dam at least 6-feet tall. It has spillway on the right abutment with a road (access) across its crest and spillway. There are large saltcedars in reservoir and downstream. This small dam has a cavity through it underneath the access road.

I took three pictures:

BLMID - 3509D, Access Road, ID No. BLMID-3509D-1
Picture 1, looking downstream at main entrance to cavity, 7/26/98.

BLMID - 3509D, Access Road, ID No. BLMID-3509D-2
Picture 2, looking upstream at main exit, 7/26/98.

BLMID - 3509D, Access Road, ID No. BLMID-3509D-3
Picture 3, looking upstream trying to show erosional face of spillway and exit hole, 7/26/98.

Notes for spreadsheet entry: Condition - U (Cavity): saltcedar. Because of the lack of information about this dam, the necessary repairs are not shown in the deferred maintenance calculations. However, this dam will continue to deteriorate until road traffic causes it to collapse.

Alamos Detention Dam

These are my notes which were taken on August 13, 1998. The weather was warm and clear. BLMID - 1027, ID No. 00047, built in 1956. The map coverage used was the USGS quadrangle map "Lybrook." Dimensions from the worksheet are 28' x 1660' x 10'.

I started at the left abutment. The spillway has lots of erosion from the sides. It has lots of sage and rabbitbrush. In its sides are several badger holes and Prairie dog holes. The inlet to spillway has a concrete sill and an iron plate controlling the outflow and holding well.

Left abutment has had new fill, maybe at time they fixed the spillway. It is covered with rabbitbrush and sagebrush on the downstream, crest and upstream faces. The fill is sandy texture and the crest is broad. There is a sink hole near the original dam, which is a lighter brown color and more loamy, clayey fill. The crest is broadly rounded, but holding shape. The vegetation is mostly all sage on the original fill. There is hard weathering on both faces. Crest is not straight or level. Rivulets up both sides cutting through crest. One place where brown top is gone and the lighter material underneath is exposed; the lighter material is weathering worse.

The trash rack is OK, but is collecting lots of brush. Silt has built up three to four feet so that the drainage is having to cut down through the sediment to get to the discharge pipes. This is forming four foot headcuts into the sediment out of inlets. The conduits are not perpendicular to dam but open and working. The outlet is OK. The concrete works are OK.

On the upstream face there is a wave action scar that is two to three feet tall.

We found the 1984 marker OK.

Notes for spreadsheet entry: Condition - P; Inlets.

Apodaca Detention Dam #1

These are my notes which were taken on August 10, 1998. The weather was warm, but cloudy. BLMID - 2307, ID No. 20080, built in 1956. The map coverage used was the USGS quadrangle map "San Pablo." Dimensions from the worksheet are 14' x 617' x 9'.

We started at the right abutment. The upstream face is covered with Rabbit, fourwing salt and sagebrush. The downstream face has rabbitbrush and sagebrush.

The inlet trash rack is OK. The inlet concrete box is suspended about four to six inches. I couldn't find the outlet or a place where it might be seeping under the outlet.

This dam has an additional drop structure downstream which is being used. At the outlet of this drop structure there is a four feet deep natural stilling basin over the outlet of the pipe. The dimensions of this drop structure embankment are about 30 feet long x 25 feet wide. Its intake structure (headwall and inlet pipe) is open and clear.

Notes for spreadsheet entry: Condition - P; Inlet, outlet and rabbitbrush.

Aranda Detention Dam

These are my notes which were taken on August 5, 1998. The weather was warm and clear. BLMID - 1424, ID No. 20022, built in 1951. The map coverage used was the USGS quadrangle map "Guadalupe." Dimensions from the worksheet are 10.7' x 470' x 7'.

We started at the left abutment. We found the 1983 marker OK. There is erosion in the downstream groin. There is a cattle trail and erosion through crest. The embankment is made of a loamy, clayey fill. I found one seep hole in the downstream face 4-feet (vertical). Actually, lower levels indicate this area may have overtopped in the past. May have a new top but it is uneven and crooked. There is more evidence of over topping (bad scar) downstream.

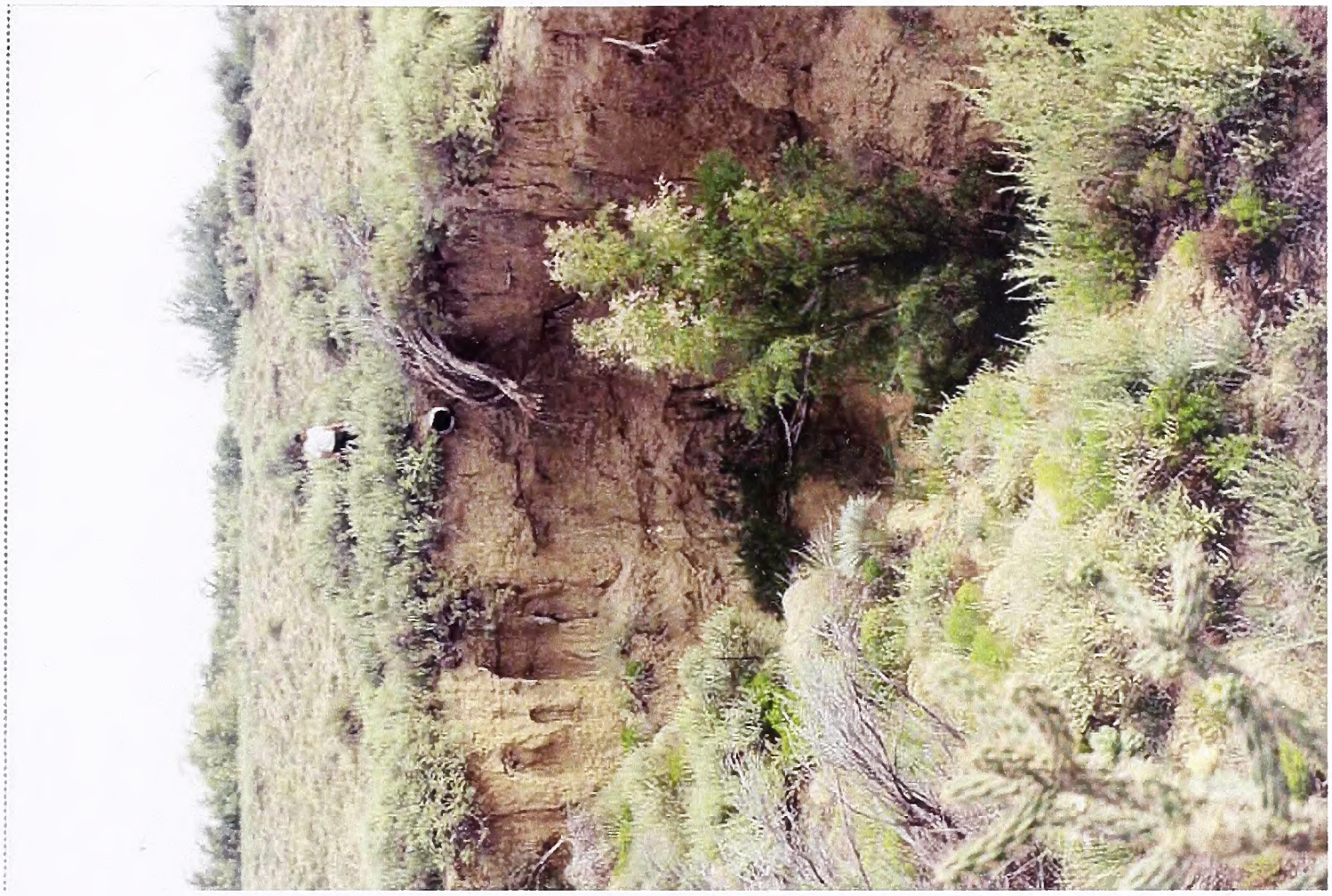
There are saltcedar in the reservoir and the upstream face (very thick), along with fourwing saltbush. There is fourwing saltbush on the downstream face.

We found three large "glory holes" within the sediment by the toe of the upstream face. These holes seem to be interconnected and may be discharging through the outlet pipe!

At this time the erosion is damaging the floor of the spillway. Near the right abutment are piles of dirt upstream and downstream - may be old seep patch.

I took 10 pictures and five of them have been joined together as a panorama of damage.

Notes for spreadsheet entry: Condition - U (spillway); inlet, outlet (needs a drop) and saltcedar.



BLMID - 1424, Aranda Detention Dam, ID No. 20022
Picture 1, looking at downstream face and outlet pipe at toe of dam, 8/5/98.

BLMID - 1424, Aranda Detention Dam, ID No. 20022
Picture 2, looking down into the headcut immediately below the dam (from right side looking at the left wall of head cut). Suspect seep outlets in the green grass and saltcedar trees, 8/5/98.

BLMID - 1424, Aranda Detention Dam, ID No. 20022
Picture 3, standing between bifurcated headcut, looking at damage of headcutting into the spillway, 8/5/98.

BLMID - 1424, Aranda Detention Dam, ID No. 20022
Picture 4, standing between bifurcated headcut, looking at damage of headcutting toward the left abutment, 8/5/98.

BLMD - 1424, Aranda Detention Dam, ID No. 20022
Pictures 5 through 9 panorama of exposed sandstone on right abutment 8/5/98

BLMID - 1424, Aranda Detention Dam, ID No. 20022
Picture 10, upstream in the sediment. The cutting is from drainage into the inlet. Rod demonstrates the location of the inlet pipe and the amount of sediment accumulated, 8/5/98.

B. P. Hovey Retention Dam

These are my notes which were taken on August 9, 1998. The weather was warm and clear. BLMID - 1273, ID No. 20062. The map coverage used was the USGS quadrangle map "Arroyo Empedrado." Dimensions from the worksheet are 7.2' x 417' x 6'.

The spillway has eroded down and cut around the dam into the sediment. However, the dam will still hold some water.

The downstream face has Chico and one saltcedar. The upstream face has saltcedar and Chico. It shows signs of a wave erosion scar. The crest is uneven and crooked; it is made from loamy fill. The reservoir has filled with silt - to within 2-3 foot of crest.

There is a two-foot deep glory hole (not open) on the right-upstream toe, sixty-five feet to the right of the conduit. There is an active sinkhole 15 feet upstream of right abutment with a corresponding outlet on the downstream toe.

Notes for spreadsheet entry: Condition - U (seeps); spillway and saltcedar.

BLMID - 1273, B. P. Hovey Retention Dam, ID No. 20062
Picture 1, looking at downstream face at a sinkhole opening, 8/9/98.

BLMID - 1273, B. P. Hovey Retention Dam, ID No. 20062
Picture 2, looking downstream from sediment above the right abutment at three sink holes in alignment with the outlet on the downstream toe, 8/9/98.

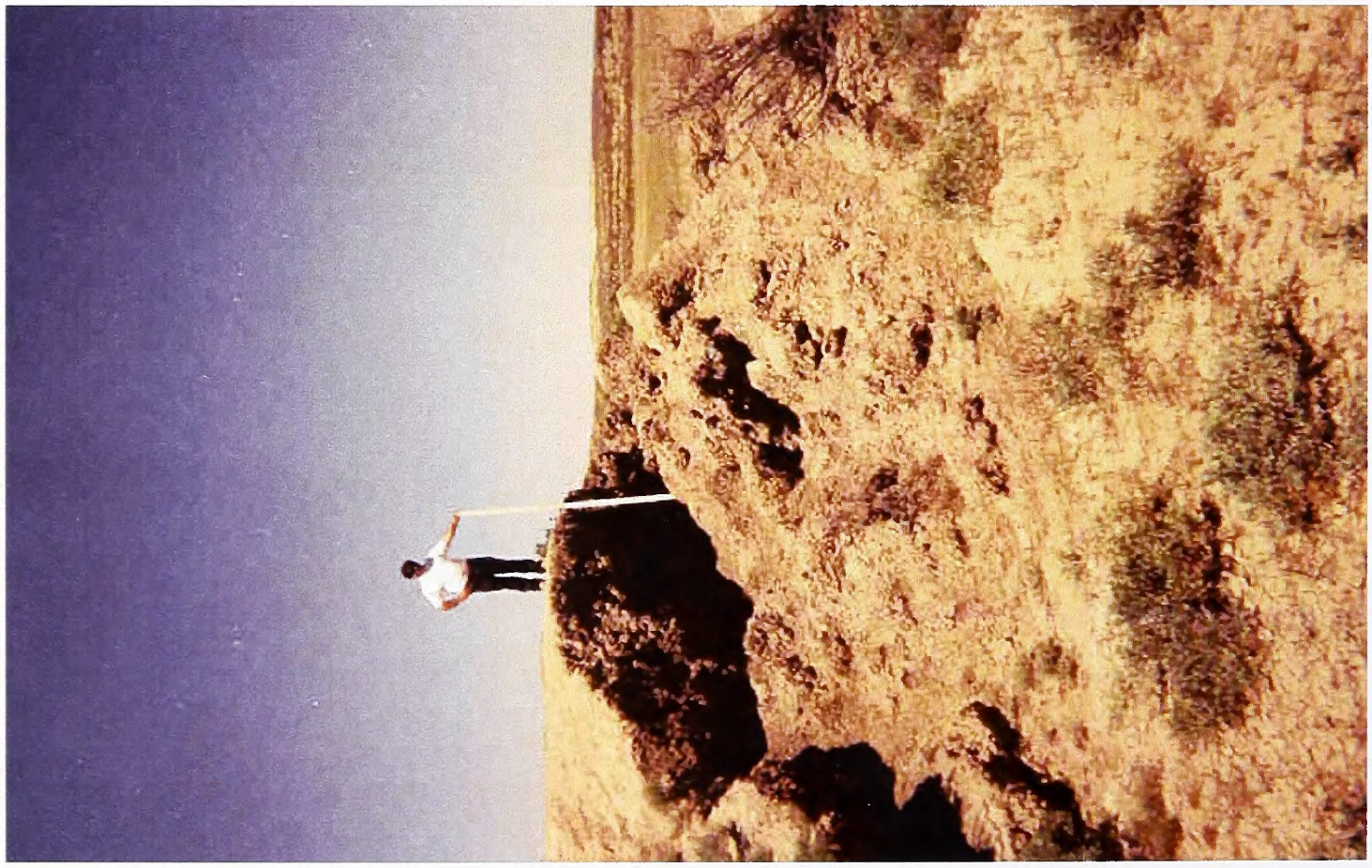
Bell Rock Detention Dam

These are my notes which were taken on July 18, 1998. The weather was warm and clear. BLMID - 1298, ID No. 20146, built in 1964. The map coverage used was the USGS quadrangle map "Tinian." Dimensions from the worksheet are 7' x 1646' x 8'.

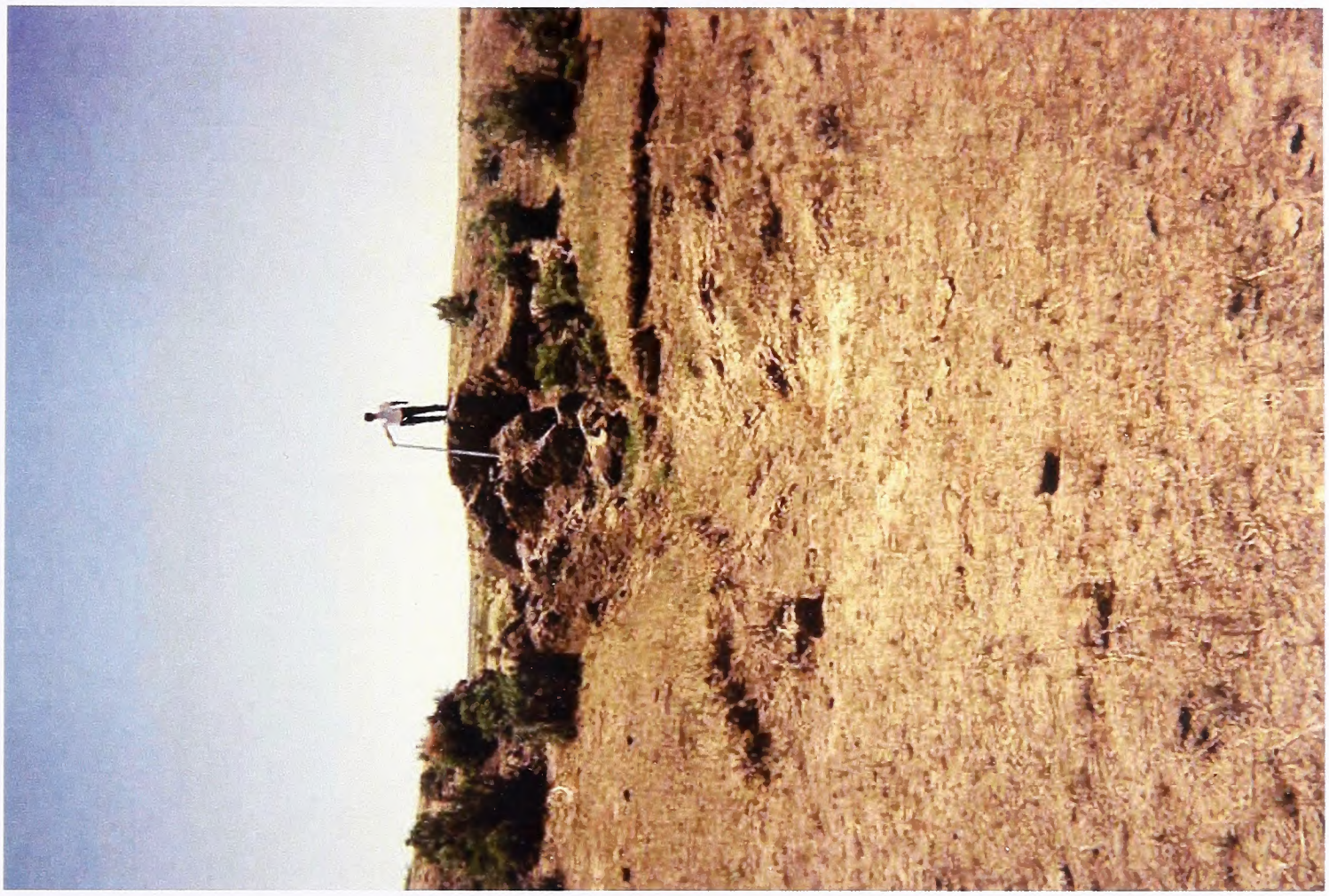
We started at the left abutment. The spillway is clean - one Chico, does not look like it has been used. There is a 375-feet wingwall between the spillway and the dam extending downstream. We found both markers. The 1984 marker has bullet holes through pipe; the 1964 marker has been broken. Rodent holes immediately downstream from marker (in the cut between crest and wing wall. Several rodent holes.). Rectangular stock pond has been built in the reservoir. At 174 feet from the markers, the dam has breached. It is 34 foot wide and the resulting headcut is reaching 60 feet into the sediment. It is estimated to be another 113-feet to where the conduit pipe crosses the dam axis.

There is Chico along the water line. There is a two to three foot wave action escarpment. An eighteen-inch inlet pipe extends 4 ½-feet above the sediment. The support braces are OK but have surface rust. The trash rack has been removed. The inlet pipe has been plugged with rocks, an enameled bucket, etc. Outlet of outlet pipe not found - buried.

The embankment is made from loamy, clayey fill. The crest is well rounded and generally slopes upstream. In this section where the crest slopes upstream there is heavy erosion upstream. This may be a slump beginning at the breach and extending for 160-feet further than the breach (upstream slope). At 368-feet the crest levels out. There is rabbitbrush in center sections of the dam. Otherwise there is sagebrush toward the left side.



BLMID - 1298, Bell Rock Detention Dam, ID No. 20146
Picture 1, looking upstream at breach from toe of dam, 7/18/98.



BLMID - 1298, Bell Rock Detention Dam, ID No. 20146
Picture 2, looking downstream at breach and new headcut, 7/18/98.

Notes for spreadsheet entry: Condition - U (breached); Inlet, outlet, rabbitbrush and rodents.

Big Island Dam

These are my notes which were taken on August 13, 1998. The weather was warm and clear. BLMID - 1377, Big Island Dam, ID No. 00054, built in 1957. The map coverage used was the USGS quadrangle map "Mule Dam." Dimensions from the worksheet are 20' x 907' x 9'.

We started at the left abutment. The dam seems very similar to the pictures of May 12, 1984, except the sage is larger. Sage upstream and downstream. Stand pipe as pictured except more rusty.

A storm was approaching and we watched as a stud "drove" his herd of mares and colts at a full gallop through the reservoir area and over the hill.

Notes for spreadsheet entry: Condition - P.

C. Garcia Detention Dam Section 8

These are my notes which were taken on August 8, 1998. The weather was warm and clear. BLMID - 1824, ID No. 20023, built in 1953. The map coverage used was the USGS quadrangle map "Guadalupe." Dimensions from the worksheet are 7.4' x 700' x 9'.

We started at the right abutment. We found the 1983 and 1954 markers OK (Project S&M 360 Cirilio Garcia). The Crest is uneven and crooked. The upstream face has snakeweed, fourwing saltbush, saltcedar and rabbitbrush. The downstream face has sagebrush and fourwing saltbush. There are Badgers in the crest, and rodents (prairie dogs) in the downstream face.

There is a headcut at the face of the dam indicating a lot of water passing through in order to cause the extent of erosion. By dowsing there may be five outlet conduits overall. Either these multiple pipes continue to allow draining or else there is water going under dam.

The 500-feet x 3-foot wingwall needs rebuilt. The spillway has Juniper, fourwing saltbush, etc., and needs cleaned.

On October 12, 1983, Mr. Vasquez took a picture of the broken outlet pipe and the headwall lying in the bottom of the headcut. Today, I took a picture of the side of the headcut showing seepage, another picture of the displaced headwall (it appears to be deeper) and an overall picture of the erosion along the downstream toe.

Notes for spreadsheet entry: Condition - U (seepage); Spillway, inlets, outlets, saltcedar, rabbitbrush and rodents.

BLMID - 1824, C. Garcia Detention Dam Section 8, ID No. 20023
Picture 1, Runoff and seepage holes in the dam side of an off-shoot of the headcut, 8/8/98.

BLMID - 1824, C. Garcia Detention Dam Section 8, ID No. 20023
Picture 2, looking at downstream outlet, broken pipe and the displaced headwall, 8/8/98.

BLMID - 1824, C. Garcia Detention Dam Section 8, ID No. 20023
Picture 3, looking at downstream face from wingwall at the massive erosion that is occurring at the downstream toe, 8/8/98.

C. Garcia Detention Dam Section 17

These are my notes which were taken on August 9, 1998. The weather was warm and clear. BLMID - 1825, ID No. 20024, built in 1953. The map coverage used was the USGS quadrangle map "Guadalupe." Dimensions from the worksheet are 13.3' x 1330' x 8'.

This dam has remained breached for fifteen years. Mr. Vasquez reported a complete breach on October 12, 1998. There is a copy of a hand written memorandum in file also calling attention to the fact that it is breached. The pictures were taken to document the continuing erosion of the sediment in the reservoir.

Notes for spreadsheet entry: Condition - U (breached); inlet, outlet and saltcedar.

BLMID - 1825, C. Garcia Detention Dam Sec. 17, ID No. 20024
Picture 7, looking along the downstream face across the breach.
Pipe is the outlet pipe with the bend creating a drop structure, 8/9/98.

BLMID - 1825, C. Garcia Detention Dam Sec. 17, ID No. 20024
Pictures 1 - 6, panorama looking upstream from the crest
at the split headcut in the sediment, 8/9/98.

BLMID - 1825, C. Garcia Detention Dam Sec. 17, ID No. 20024
Picture 8, looking at the downstream face and breach from edge of headcut, 8/9/98.

BLMID - 1825, C. Garcia Detention Dam Sec. 17, ID No. 20024
Picture 9, looking from the bottom of the breach at the upstream face, inlet box, and outlet pipe, 8/9/98.

BLMID - 1825, C. Garcia Detention Dam Sec. 17, ID No. 20024
Picture 10, looking from end of the headcut within the reservoir downstream through the headcut, 8/9/98.

BLMID - 1825, C. Garcia Detention Dam Sec. 17, ID No. 20024
Picture 11, looking from sediment within the reservoir downstream through the headcut, 8/9/98.

BLMID - 1825, C. Garcia Detention Dam Sec. 17, ID No. 20024
Picture 12, looking from sediment within the reservoir toward
the left abutment at the headcut along the upstream toe, 8/9/98.

Cabezon Community Detention Dam

These are my notes which were taken on August 1, 1998. The weather was overcast and cool, roads were muddy. BLMID - 1955, Cabezon Community Detention Dam, ID No. 20057, built in 1953. The map coverage used was the USGS quadrangle map "Arroyo Empedrado." Dimensions from the worksheet are 11' x 1663' x 10'.

We started at the left abutment and found the 1983 marker OK. The original ten-foot wide crest width is gone - it is no longer straight; no longer even.

On this left side, both the upstream and downstream faces are clean to the pond level. Toward the middle on the downstream face there are two or three fourwing saltbushes. On the right side, the downstream there are more fourwing saltbush and snakeweed. Through the central part of the dam, the upstream face from waterline to the crest is covered with saltcedar. On the right abutment, both faces become clean again.

The continued use of a cattle trail has allowed erosion to cut into the crest about 18-inches on the left side. The cattle trail follows the crest and the exits without as much damage. In the middle section the crest width is wider. On the right of middle, there is a large bulge. Throughout this section there are deep rills on the downstream face. The wider crest, the bulge, the faster erosion in this area makes me think that the dam has failed in the past and has been patched.

The almost natural spillway is being used without a lot of scouring.

Because of the saltcedar and high water, we could not find the inlet. However, it was open and working based on the passage of water through the dam. There are saltcedars in the outlet channel and we could not see the outlet because it is covered with running water.

Note for spreadsheet entry: U - patched and saltcedar.

Cactus Flat Dam

These are my notes which were taken on July 25, 1998. The weather was warm and overcast. BLMID - 5519, ID No. 20129, built in 1956. The map coverage used was the USGS quadrangle map "Tinian." Dimensions from the worksheet are 14' x 429' x 7'.

We started at the right abutment. We found the 1984 marker and only the pipe of the 1956 marker. The embankment was made with loamy, clayey fill. The dam has sagebrush and snakeweed. The crest is well rounded and uneven. There are two wave action erosion 2 banks (benches); one at two-feet and one at four-feet.

The inlet pipe is buried under approximately 4-feet of sediment. This is causing erosion in the reservoir. The trash rack, supports, and braces are all rusty - completely plugged. The trash rack is not installed properly. Originally, the outlet pipe had a drop structure, but it has been disassembled. Outlet structure completed covered.

Spillway wingwall (200-feet) needs to be rebuilt and extended 100-feet. I think it needs a drop structure. Erosion into the spillway and out of spillway floor. Natural erosion on the far (natural) side of spillway. The headcut is actively moving toward spillway now.

Notes for the spreadsheet entry: Condition - P; Spillway, drop, Inlet, outlet, sage and riprap.

Cairn Dam

These are my notes which were taken on July 18, 1998. The weather was warm and clear. BLMID - 0389, ID No. 20103, built in 1954. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 18' x 446' x 6'.

We started at the right abutment. We found both markers (1984, 1954) OK. It is a very clean dam - downstream face is clean! Vegetation consists of sagebrush and snakeweed, including sage growing on the sediment. There is an older wave action scar along upstream face (3-feet). The left side of dam has more slate/sandstone float on the downstream side.

The spillway needs cleaning and reforming - slight erosion downstream. Wing wall is eroding into spillway and there is some erosion from the natural side.

Crest of dam has sway in it. It has lost its shape and is rounded. The embankment was made with loamy, clayey fill. Cattle trail across right side is eroding crest.

The inlet box is clear, but grassy debris is collecting in the trash rack, and a big sagebrush is growing over it. The top of the inlet box is approximately the siltation level. Water has to cut through the sediment get to the discharge pipe. Inlet pipe is open, but the outlet is plugged. I can see that the water has come out, but the natural stilling basin hole is sloughing-in over pipe.

Drop structure. There is a drop structure below dam. The berm of the drop structure has been breached (8-feet deep and 12-feet wide) with the headcut coming into the sediment of the lower pond. The major headcut is about 250-feet downstream of this lower berm.

Note for spreadsheet entry: Condition - P; Spillway, drop structure, inlet, outlet and riprap.

Camelhead Dam

These are my notes which were taken on July 17, 1998. The weather was warm and clear. BLMID - 0396, ID No. 20105, built in 1954. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 22' x 513' x 8'.

We started at the right abutment. We found two markers OK (1954, 1984) across the spillway. Erosion from the natural far side of spillway is decreasing its capacity. Perhaps it needs a sloped Gabion retention wall. Sagebrush in spillway, erosion on the downstream side.

The original crest shape is gone - well rounded. The dam is made with loamy, clayey soil. On this right side, the top half of the upstream slope is clean; the bottom has sage and grass. The downstream slope is clean. As I walked the dam, later I found big sagebrush, a dozen small sage and 2 large fourwing saltbushes. Two cattle trails cross the downstream face. There is a large natural stilling basin at outlet. The 15-inch diameter outlet pipe is open.

There are more sink holes on the flat (in the sediment) and more newer gopher holes in the fill. On the right side the dam and crest are different - there are sink holes and gopher holes on the upstream side. At 43 feet (from right top of fill at spillway (right abutment)) is the first real sink holes in reservoir. At 250-feet is the end of the new fill section. 156-feet further from there is where the outlet pipe crosses. At 263-feet from there I found a large badger/sink hole 5-feet down from the top.

I started finding rodent holes at 27-feet. At 38-feet I found a badger hole downstream (large rabbit hole?) I found a piping hole. At 96-feet another badger hole 4-feet down from top. By 138-feet I was not finding any more holes.

Notes for spreadsheet entry: Condition - U (patched); spillway, sink holes, rodents

BLMID - 0396, Camel Head Dam, ID No. 20105

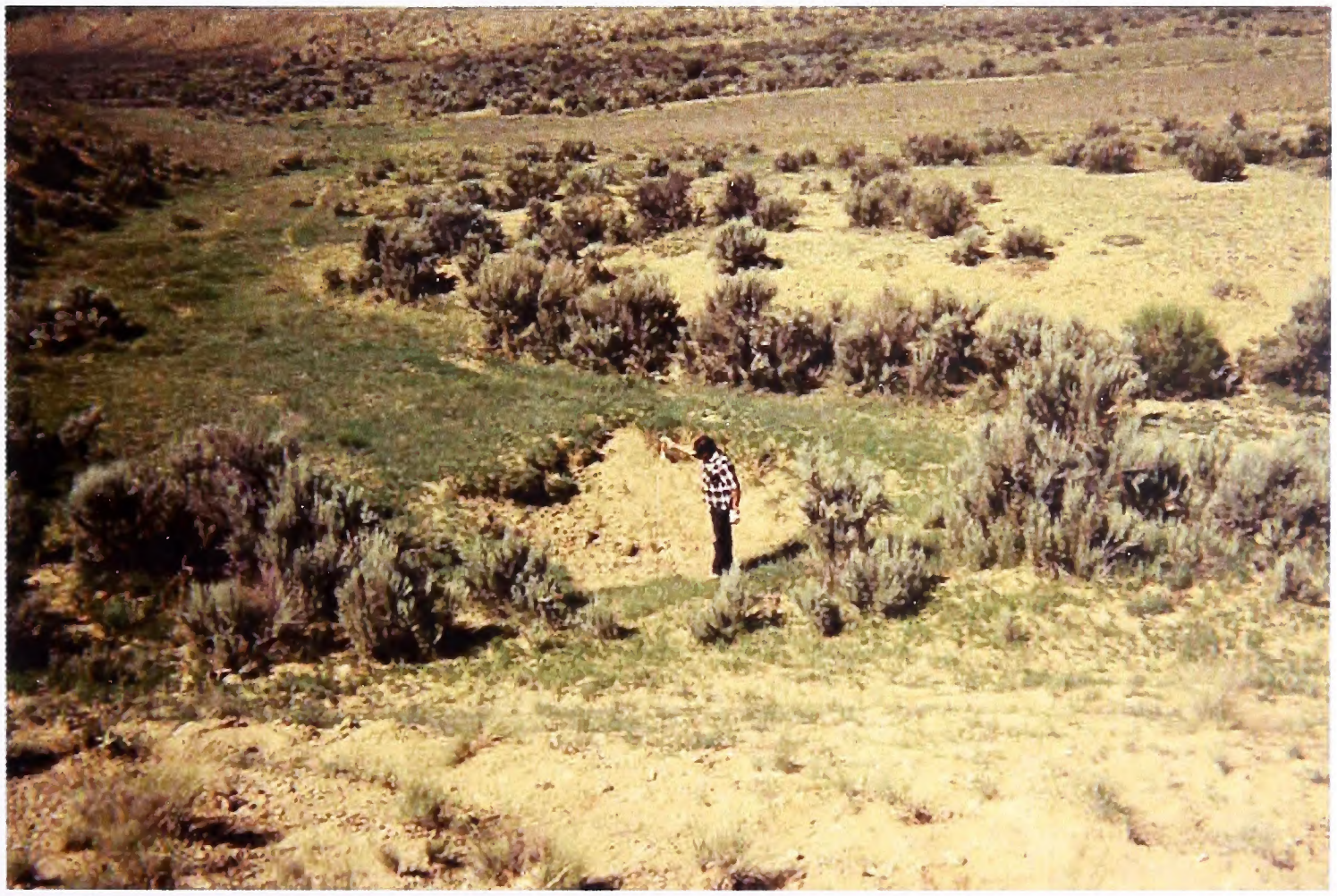
Picture 1, inlet pipe. The old coat shown in 1984 is still lying on the bank of the dam, 7/17/98.

BLMID - 0396, Camel Head Dam, ID No. 20105
Pictures 3 and 4, Panorama of "new" section. The orange lathe is marking gopher holes to the left and sink holes to the right. Pictures 3 and 4 overlap about where Johnny is standing, 7/17/98.

BLMID - 0396, Camel Head Dam, ID No. 20105
Picture 2, Close-up of sink holes in the sediment. The orange topped lathe is marking sink holes, 7/17/98.

BLMID - 0396, Camel Head Dam, ID No. 20105
Picture 5, looking from right abutment, pickup is on sediment close to inlet, 7/17/98.

BLMID - 0396, Camel Head Dam, ID No. 20105
Picture 6, looking from left abutment, pickup is on sediment close to inlet, 7/17/98.



BLMID - 0396, Camel Head Dam, ID No. 20105
Picture 7, Mr. Chavez at top of the outlet pipe's natural stilling basin.
Tape shows 3' to the top of pipe from grass (3 feet ± of silt), 7/17/98.

Canada Corrales

These are my notes which were taken on August 13, 1998. The weather was warm, but cloudy, rain threatening. BLMID - 0733, Canada Corrales, ID No. 00046, built in 1962. The map coverage used was the USGS quadrangle map "Mule Dam." Dimensions from the worksheet are 31' x 2560' x 10'.

We began on the right side. The spillway has a road through it at the outlet that is parallel to the dam. They have recently built a pit upstream, perhaps this is the barrow pit for a new patch. Have a transverse crack at 50 feet from the marker. A storm is approaching (we got ahead, but it is still threatening), so we quickly drove along the downstream toe until we came to where there is a new patch being built in the center of the dam.

Notes for spreadsheet entry: Condition - P.

BLMID - 0733, Canada Corrales Dam, ID No. 00046
Picture 3, looking right to left along the crest, construction of patch, and headcut in the sediment area, 8/13/98.

BLMID - 0733, Canada Corrales Dam, ID No. 00046
Pictures 1 and 2, looking at downstream face at site of breach and active construction of a patch (panorama picture 1 of 2), 8/13/98.

BLMID - 0733, Canada Corrales Dam, ID No. 00046
Picture 4, looking left to right along the upstream face,
down the headcut and the intake structure, 8/13/98.

Cass Goodnar Dam Section 4

These are my notes which were taken on July 29, 1998. The weather was warm and clear. BLMID - 1660, ID No. 20054, built in 1951. The map coverage used was the USGS quadrangle map "San Luis." Dimensions from the worksheet are 13.5' x 435' x 6'.

We started at the right abutment. We found both markers (1983, 1952). The spillway is eroded-in and scoured on the bottom; it needs cleaning. Within the spillway is sagebrush, Cholla and fencing and it needs reshaped. At the fence in the spillway, there is a very old sediment measuring device - four small angle irons holding a glass bottle. We took a picture of the monitoring station, it is most preserved station that we found. There is the post for an old precipitation gage at this site also.

Vegetation on the dam includes Sage, fourwing saltbushes, saltcedar and juniper. There is a three to four-foot wave action scar. The embankment is a layered berm - brown colored then tan colored and the grey colored. The top is loamy, clayey fill (allegator cracks). Mr. Chavez found 3 pipes - one under each pile and one at the monitor station (see picture). The two mounds of dirt have caused the upstream face to erode seriously - it is clean to crest. Left abutment is on a rock outcrop. Overtopped just left of monitor station and outlet and at the second pile of dirt.
Notes for spreadsheet entry: Condition - U (patched); Spillway, inlets, outlets, riprap, saltcedar, and fourwing saltbush.

BLMID - 1660, Cass Goodnar Dam Section 4, ID No. 20054
Picture 1, remains of monitoring station, 7/29/98.

Cass Goodnar Reservoir Section 6

These are my notes which were taken on July 29, 1998. The weather was warm and clear. BLMID - 2173, ID No. 20055, built in 1954. The map coverage used was the USGS quadrangle map "San Luis." Dimensions from the worksheet are 12.6' x 926' x 5'.

We began at the right abutment. We found both markers (1954, 1983) OK. The embankment is made with loamy, clayey fill. There is a strange magnesium or at least black aggregate in the fill. The crest is not straight/uneven lots of natural weathering.

Vegetation consists of Sagebrush, a juniper, and Chico and fourwing saltbushes on both faces. Saltcedar is both upstream and downstream in one place; approximately ½ way. There is a 3 to 4-feet erosion wall from wave action.

There is a protective berm at the top of the headcut that is being eroded (natural - or seepage?). I found rodent holes at the toe of the downstream face and Salt cedar along downstream toe for 100-feet. There is definitely quite a lot of sediment from dam (outwash) here. Possible intake for seep hole on the upstream toe between salt cedar and toe by bushes etc. We have lost two feet of fill over all of this dam.

Predominately sagebrush in the spillway. Spillway has eroded from both sides. Appearance of sandy soil in spillway. Spillway floor has erosion channel.
Notes for spreadsheet entry: Condition - P; Spillway, riprap, Salt cedar, juniper, fourwing saltbushes and rodents.

Cass Goodnar Section 26 Detention Dam

BLMID - 2040, ID No. 20066, built in 1954. The map coverage used was the USGS quadrangle map "Headcut Reservoir." Dimensions from the worksheet are 18.6' x 733' x 6'. We did not visit this dam. The Condition Survey of November 16, 1983, reported headcutting in the spillway and undercutting of the outlet headwall.

Notes for spreadsheet entry: Spillway, outlet and salt cedar.

Cass Goodnar Section 34 Detention Dam

BLMID - 2041, ID No. 20067, Built in 1954. The map coverage used was the USGS quadrangle map "Headcut Reservoir." Dimensions from the worksheet are 11.6' x 468' x 8'. We did not visit this dam. The Condition Survey of November 16, 1983, reported the intake was in bad condition, the outlet needed replacing, rodent holes and sagebrush and Salt Cedar.

Notes for spreadsheet entry: inlet, outlet, rodents and salt cedar.

Center Dam

These are my notes which were taken on August 13, 1998. The weather was warm and clear. BLMID - 1326, ID No. 00050, built in 1963. The map coverage used was the USGS quadrangle map "Mule Dam." Dimensions from the worksheet are 24' x 1112' x 6'.

We started at the at the right side. Headcut through right abutment/spillway. Upstream face has one salt cedar, rabbit, sage. Downstream has sage.

Notes for spreadsheet entry: Condition - U (spillway); inlet, outlet, and salt cedar.

BLMID - 1326, Center Dam, ID No. 00050

Picture 1, looking upstream through the spillway and exit of headcut formed in spillway, 8/13/98.

BLMID - 1326, Center Dam, ID No. 00050
Picture 3, looking upstream down into the headcut on the right side, 8/13/98.

BLMID - 1326, Center Dam, ID No. 00050
Picture 4, looking upstream at the large intake that is crooked and plugged, 8/13/98.

BLMID - 1326, Center Dam, ID No. 00050
Picture 5, looking across the downstream face at the overtopping erosion, 8/13/98.

Chasm Dam

These are my notes which were taken on July 25, 1998. The weather was warm and overcast. BLMID - 1104, Chasm Dam, ID No. 00048, built in 1956. The map coverage used was the USGS quadrangle map "Tinian." Dimensions from the worksheet are 18' x 422' x 7'.

We started at the left abutment. The road is now just two tire tracks which run through the spillway. The spillway outlet is eroding. I recommend a "drop structure" at this spillway outlet, an energy dissipating drop. We found the 1984 marker and its pipe with bullet holes. The dam is made with loamy, clayey, gravely fill. There is a long low wingwall that needs reshaping. The downstream face is fairly clean with small sage and fourwing saltbush.

We did not find any sign of the inlet structure. The outlet is plugged by sloughing from three sides. Mr. Chavez states that there is only one pipe (dowsing).

There is a three to four-foot wave action scar on the upstream face. There is lots of organic dead brush piled above the wave action scar. Crest is well rounded and uneven. There are several three-inch rodent holes in crest by right abutment.

The old marker is showing across the spillway and is ready to fall into the spillway (1956). Notes for the spreadsheet entry: Condition - P; Spillway - drop, inlet, outlet, fourwing saltbush, riprap and rodents.

Chimney Dam

These are my notes which were taken on August 13, 1998. The weather was warm and clear. BLMID - 1330, Chimney Dam, ID No. 00051, built in 1963. The map coverage used was the USGS quadrangle map "Mule Dam". Dimensions from the worksheet are 24' x 1460' x 8'.

We started on the right abutment. We found both markers, 1984 and 1956 (the older marker was all beat up). The crest is rounded to about one to two-feet wide and is crooked. The dam is hard, which indicates good original compaction. It has layered fill - tan brown on the top and brownish grey underneath. The reservoir is full, water is standing within 3 feet of remaining crest. Hard wave action is scouring to within one foot of top (vertical). Wave action erosion has created a vertical drop from the edge of the crest.

The upstream face has Sage and a few rabbitbrush. Downstream face has sagebrush and a couple rabbitbrush.

Erosion is cutting into the right abutment's downstream grain. There is lots of human trash. Heavy erosional scar (believe wave action is over topping dam at times).

There is an old burnt out car in wash along groin of downstream face (erosional scar). The car was burned and the fire burned the sage around the car. I believe it was a green (aqua) Ford; it has a 1973 license plate BFB 601; New Mexico - 1974.

Inlet pipe is under water. We found the top of the downstream headwall exposed about 3-inches and badly weathered (Rebar exposed). Outlet channel almost completely silted in. Mr. Chavez has found four pipes.

Water is standing in the spillway. Two trickles of water are running out. There is rabbitbrush and sagebrush in the spillway. It is eroding-in from its sides.

Notes for spreadsheet entry: Condition - P; Spillway, inlets, outlets, embankment, riprap and rabbitbrush.

Cholla Tank

These are my notes which were taken on August 14, 1998. The weather was warm and clear. BLMID - 2091, Cholla Tank, ID No. 20032, built in 1960. The map coverage used was the USGS quadrangle map "Canada Calladita." Dimensions from the worksheet are 14.6' x 500' x 7'.

On October 13, 1983, Mr. Vasquez documented a 4 to 5-foot diameter cavity through the dam. The situation remains, except the cavity has expanded and the headcut in the reservoir seems worse. This is only the second time I have seen the detail of a concrete base of the inlet riser pipe.

Notes for spreadsheet entry: Condition U - (Breached).

BLMID - 2091, Cholla Tank, ID No. 2003
Picture 1, looking along the upstream face at the inlet riser pipe and headcut in the sediment, 8/14/98.

BLMID - 2091, Cholla Tank, ID No. 2003
Picture 2, Inlet pipe's concrete base detail, 8/14/98.

BLMID - 2091, Cholla Tank, ID No. 2003
Picture 3, looking at the upstream face and cavity entrance.
Cavity entrance is now at least 7-8-feet tall, 8/14/98.

BLMID - 2091, Cholla Tank, ID No. 2003
Picture 4, looking at the upstream face and cavity entrance.
Cavity entrance is now at least 7-8-feet tall, 8/14/98.

BLMID - 2091, Cholla Tank, ID No. 2003
Picture 5, looking at the upstream face, cavity exit and depression along the crest, 8/14/98.

BLMID - 2091, Cholla Tank, ID No. 2003
Picture 6, looking upstream into the cavity;
note the light shining on the wall from the upstream entrance, 8/14/98.

Cordova Diversion Dam

BLMID - 2322, Cordova Diversion Dam, ID No. 20078, built in 1956. The map coverage is the USGS quadrangle map "San Pablo." Dimensions from the worksheet are 4' x 1089' x 8'.

We did not visit this dam. The Condition Survey of April 15, 1984, reported that the spillway was eroding and headcutting.

Notes for spreadsheet entry: spillway.

Cornfield Wash Dam # 1

These are my notes which were taken on July 16, 1998. The weather was warm and clear. BLMID - 0349, ID No. 20116, built in 1953. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 13' x 671' x 9'.

We started at the left abutment. We found both project markers (1951, 1984). The dam is made with loamy fill, but it seems to be layered. The top layer seems more yellow colored. At 100-feet there are three large "rills" downstream face (rivulets). Wave action has badly eroded the upstream face.

The upstream face has lots of sage. The downstream face remains fairly clean, with only a few sage. Downstream face is very soft, but it has a crust. Lots of snakeweed.

There are several rodent holes in upstream face and rodent activity in upstream face. There is more rodent activity near the inlet box.

The trash rack is in place, pipe is open but rusting. Square inlet box (concrete is spalling off) is open. The outlet pipe has a drop and is jointed at the bend. It has been split below the joint, probably hit with equipment during construction. Outlet pipe is plugged but a depression shows where it has blown open in past.

Right upstream face is holding shape better; it has more rock in the fill. At the right abutment, the top is yellow underneath the more tan fill.

The spillway needs cleaning and reshaped.

Notes for spreadsheet entry: Condition - F: Spillway, inlet, outlet, riprap, sagebrush and rodents.

Cornfield Wash Dam # 2

These are my notes which were taken on July 16, 1998. The weather was warm, but overcast. BLMID - 0353, ID No. 20115, built in 1953. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 16' x 680' x 10'. Note: approaching this dam from the north, there is a light streak right down through the middle. It looks like a patch from a distance.

Spillway (right abutment) fairly clean. The two markers are on the right of the spillway cut. Spillway may have been excavated lower.

Wing wall downstream may need lengthening and reshaped. Major badger hole just off center line of crest in wingwall upstream. Wing wall is made with a shale material.

I Think that dam is multi-layered, with shale material on the top, and loamy material underneath. The crest has lost its shape. The dam has been beached and patched right at the curve in middle of dam. It has transverse cracks at the edges of the patch. The patched area is slightly below grade on the crest. Fill material definitely different than on the crest. Left of the patch the fill is more loamy and at the left abutment it is more loamy, clayey.

At 50-feet to the left of the right abutment is a sink hole in downstream face. At 88-feet is another sink hole on the downstream face. Actually, we found several seep holes. We found a Badger hole/seepage hole just below crest at point of intersection of the curve that showed signs of transporting water. At the toe of the downstream side is a 6 to 8-foot-diameter wet spot that has been larger in the past judging by the surrounding cow tracks. This has been caused by water penetrating through the dam.

There is large sagebrush up and down both faces and snakeweed. Mice holes in upstream face. There's a very high wave action escarpment (6-feet up bank).

Theory: It was overtopping slightly before it breached. Someone (not BLM) brought out heavy equipment (CAT) and 1) lowered the spillway, 2) filled in the breach and 3) added fill material along the top where it had overtopped. At one point the water was flowing through the badger hole and exiting straight across but may have found its way through the dam to other exits.
Notes for spreadsheet entry: Condition - U (breached and patched; spillway, rabbitbrush and sagebrush, riprap, and rodents.

Cornfield Wash Dam # 3

These are my notes which were taken on July 16, 1998. The weather was warm and clear. BLMID - 0357, ID No. 20155, built in 1953. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 6' x 485' x 4'.

This dam has been breached. We started at the right abutment. We found the 1984 marker intact, but the 1953 marker has cap removed. Vegetation consists of sagebrush, fourwing saltbush and snakeweed on the upstream side. At the center of dam there is large rabbitbrush that is too thick to walk through. I found a rodent hole near crest (upstream 50-feet from outlet pipe), and there is a four-foot sink hole upstream and slightly right of outlet headwall.

I found piping along outlet pipe. The inlet structure is open although it has the carcass of an old bicycle in the opening.

There is, what appears to be, a large concrete stilling basin further downstream. Seeing movement in the wash and following a dead animal smell led us to this basin (normally we would not have investigated the wash below the dam). Today we found 2 horses, a Hereford bull, and a dead cow trapped in this stilling basin (2:00 pm). The horses could hardly make any sounds they were so exhausted. We notified the neighboring Indians at the Mission, and later saw two pickups at the site.
Notes for spreadsheet entry: Condition - U (Breached):

BLMID - 0357, Cornfield Wash Dam #3, ID No. 20155
Picture 1, looking upstream at beach on right side, 7/16/98.

BLMID - 0357, Cornfield Wash Dam #3, ID No. 20155
Picture 2, Picture of rodent holes in breach, 7/16/98.

Cornfield Wash Dam # 3 Drop structure

These are my notes which were taken on July 16, 1998. The weather was warm and clear. The map coverage used was the USGS quadrangle map "Wolf Stand."

There is a large "U" shaped berm downstream which has been breached also. It breached close to the outlet pipe, which is now exposed. Earlier condition surveys did not mention this drop structure. This structure should be rebuilt, but estimates were not made (we got distracted by the findings downstream).

BLMID - 0357, Cornfield Wash Dam #3, ID No. 20155
Picture 3, Exposed bend in the outlet pipe of the breached stilling basin, 7/16/98.

Cornfield Wash Diversion Dam

These are my notes which were taken on July 13, 1998. The weather was warm and sunny. BLMID - 0052, Cornfield Wash Diversion Dam , ID No. 20099, built in 1951. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 7' x 1406' x 8'.

I started at the left abutment. This dam has no crest form left, just a round mound of dirt. Vegetation consists of Chico and sagebrush on the upstream face. Good grass and brush on the sediment (reservoir area). According to the Water Supply Papers this is Indian crop land.

At 115-feet from the left abutment, the downstream face has eroded completely (vertical drop). This extends to 460-feet, where there's more semblance of downstream face to 475-feet. At 630-feet the dam is completely breached and the headwall extends 100-feet into the sediment.

This first breach is at least 40-feet wide. From this breach toward the right abutment there is no downstream face for 380-feet. There is lots of fourwing saltbushes, Chico, sage and some salt cedar. At 380-feet from the last breach is another breach with the headcut into the sediment - about a 70-feet breach. Here the entire upstream face is gone because there is serious erosion occurring on the upstream face and in the sediment (after the breach).

At about 130-feet from the second breach is the point of intersection for a curve in the dam and again the downstream face is gone. From here it is about 380-feet to the marker and spillway. The spillway has washed to clean sandstone. The last 100-feet of the upstream face is gone also - the only thing left is the width of the crest. In the sediment, there is a 4-feet headcut eating at upstream face. Below the spillway there is a serious headcut approaching the spillway and dam approximately 150-feet downstream. Every precipitation "event" is washing sediment downstream. Every event is contributing to major headcutting.

While I was investigating the damage a car stopped. A neighbor, Dorothy Toledo, told Mr. Chavez that this damage was done in 1994. In theory the flood over-topped the dam and then formed two breaches (simultaneously). I did not see signs of rodent activity.
Note for spreadsheet entry: Condition - U (breached); spillway needs drop structure, salt cedar, fourwing saltbush, sagebrush and Chico.

Cornfield Wash Tank

These are my notes which were taken on July 13, 1998. The weather was warm and sunny. BLMID - 0024, Cornfield Wash Tank , ID No. 20100, built in 1951. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 16' x 1104' x 8'.

The marker is in place but had been purposefully scratched so couldn't read numbers. There is a hard, compacted road across crest. The left abutment is against a natural rock ridge.

From 170-feet of left abutment to 240-feet, the downstream face has washed almost vertical. From 240 to 325-feet, the wash is so extensive that the natural slope cannot be seen. From 325-feet to 450-feet, there is bad erosion - but original slope is evident. This is caused from overtopping.

Manzanita (Chico) and sage predominate. Water (wave) action on the upstream slope has made benches. Manzanita on the downstream slope from 1/4-1/3 way to right abutment. At 450-feet on the downstream face the vertical drop continues for 420-feet, then is the best section of downstream slope for 100-feet. Another section, 175-feet long, of vertical drop (washing downstream face) just past the spillway outlet pipe.

Inlet pipe is clean and has a plywood cover. There is a locked door on the side 2-feet tall and an open 9-inch door at the top of pipe. (Later I learned that this was a monitoring station). Galvanized - no rust.

Rest of right abutment has been undercut on the downstream slope in spots for about 85-feet, then becomes vertical cut again for about 65-feet. There is a 20-feet wide road across the right abutment. Spillway has washed to bedrock (sandstone) and darker chocolate sandstone.
Note for spreadsheet entry: Condition - U (overtopped); spillway needs drop structure, Manzanita and sage.

BLMID - 0024, Cornfield Wash Tank, ID No. 20100
Picture 1, looking upstream at the downstream face, with Mr. Chavez standing "in" the scar of the downstream face, 7/13/98.

BLMID - 0024, Cornfield Wash Tank, ID No. 20100
Picture 2, Picture of downstream "scaring" looking toward right abutment, 7/13/98.

BLMID - 0024, Cornfield Wash Tank, ID No. 20100
Picture 3, Picture of downstream "scaring" looking toward right abutment, 7/13/98.

BLMID - 0024, Cornfield Wash Tank, ID No. 20100
Picture 4, Picture of only evidence we found of low-level outlet gate, 7/13/98.

Costillo Group #1 Dam #1

These are my notes which were taken on July 25, 1998. The weather was warm and overcast. BLMID - 0004, ID No. 20154, built in 1950. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 10' x 498' x 7'.

There is a headcut to spillway outlet which is being held "at bay" by layer of sandstone. The headcut is approximately 10 foot deep. The spillway has eroded badly along the bottom.

We found both markers OK (1950, 1984). The crest is very rounded and shows lots of natural erosion. This dam is breached. Close to the breach are big piles of dirt full of rodents. Sediment is within 3-feet of crest (vertical). Large juniper trees, lots of sage. Downstream face is fairly clean. On the left side it has multi-layered fill (tan shaley, and grey loamy). It has two spillways. The second spillway is eroding as well.

Notes for the spreadsheet entry: Condition - U (Breached); Two spillways, drop, Juniper and sage, and rodents.

Costillo Group #1 Dam #2

These are my notes which were taken on July 25, 1998. The weather was warm and overcast. BLMID - 0293, ID No. 20097, built in 1950. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 10' x 601' x 6'.

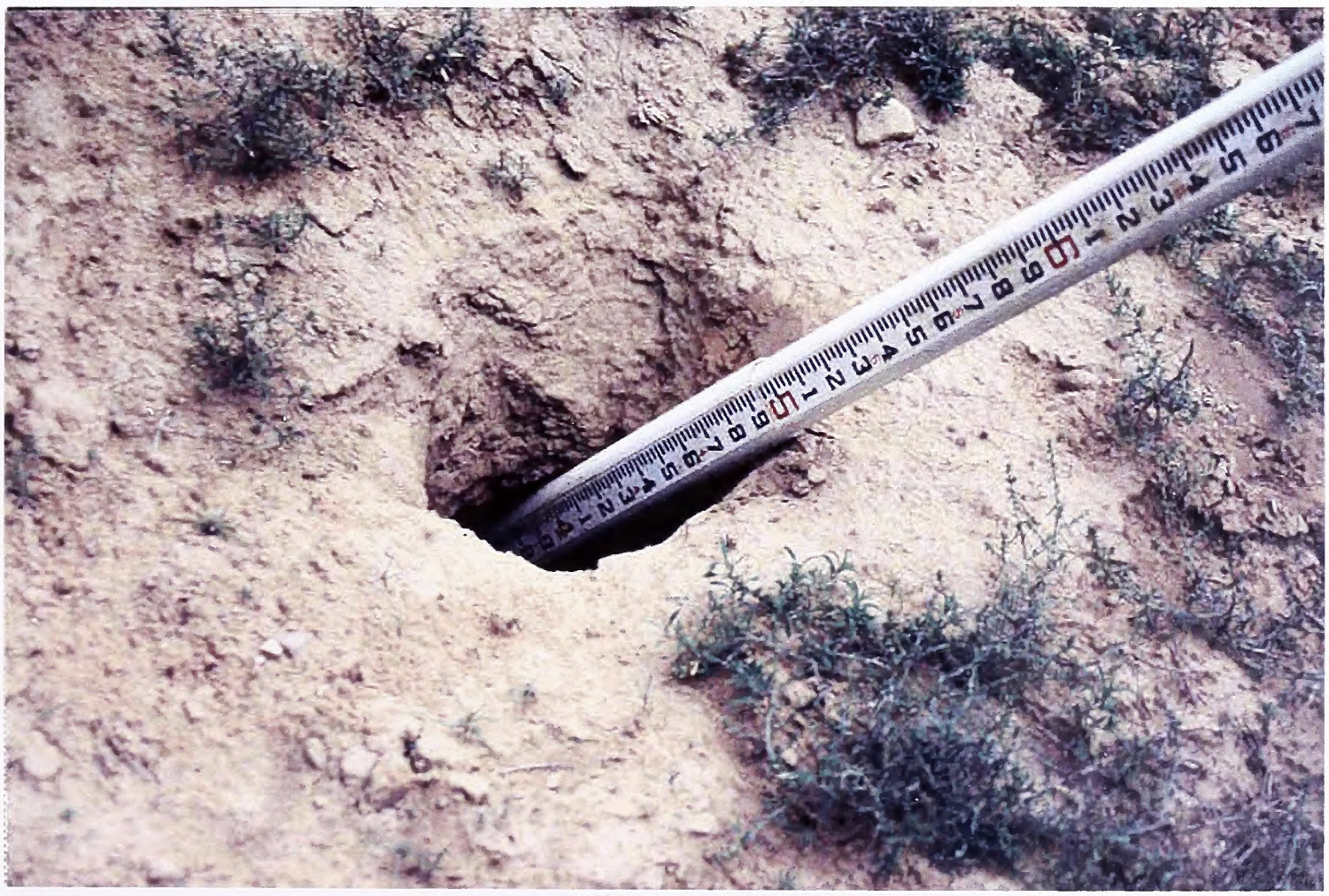
We started at the right abutment. At the left abutment found 1957 marker and 1984 marker in good shape. The spillway is eroding from both sides. There is bad erosion at the outlet of the spillway.

The dam is made with loamy fill with an uneven crest that is well rounded. It is quite clean. There is a small slump (20 to 30-feet wide) on the upstream face and a mild wave-erosion scar. Vegetation consists of sagebrush, Manzanita, (Chico), and snakeweed. Cattle trails are depressing the crest. Slight overtopping has occurred in low crest (big pile of dirt downstream). There is an old patch to the right of the outlet works. Top is still depressed where outlet works cross underneath (seepage down pipe?)

We found only a depression where inlet should be according to the dowsing. There is one large sink hole on the downstream face which is five-feet deep. I took two pictures. At the bottom it feels like and sounds like the rod is tapping on the outlet pipe.

Notes for the spreadsheet entry: Condition - U (Patched); Spillway, sage, Manzanita, and riprap.

BLMID - 0293, Costillo Group #1, Dam #2, ID No. 20097
Picture 1, seephole exit on downstream face, 7/25/98.



BLMID - 0293, Costillo Group #1, Dam #2, ID No. 20097
Picture 2, seephole exit on downstream face, 7/25/98.

Costillo Group #1 Dam #5

These are my notes which were taken on July 16, 1998. The weather was warm and clear. BLMID - 0003, ID No. 20114, built in 1950. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 9' x 649' 4'.

This dam has been breached twice. Two markers found (1951 and 1984) in good condition. We started from the right abutment. The dam is made of whiter, lighter soil with red rocks in the fill. Fourwing saltbush, sagebrush and snakeweed are prevailing on the upstream face. There are mice holes near the crest of the first breach. First breach is 146-feet from marker, it is 23-feet wide. Second breach is 321 feet from marker, and it is 35-feet wide. Headcut into the sediment is 20-30-feet deep at upstream side of second cut. It stops at the toe of the dam.

Outlet is 230-feet beyond left side of second cut. The inlet and the outlet to the pipe is open. However, the outlet was having to rise 2-3-feet to exit, because it had formed its own natural stilling basin, and the headcut behind it has cut back to the crest.

There is a severe prairie-dog-city in the fill at the right abutment and spillway wingwall (downstream). The wingwall is full of prairie dog and badger holes. The spillway is scoured. Discharge from the outlet pipe passes over shale and sandstone at the end of an interior wingwall. Did loss of capacity cause it to over top?

Notes for spreadsheet entry: Condition - U (Breached):

BLMID - 0003, Costillo Group #1, Dam #5, ID No. 20114
Picture 1, looking upstream showing both breaches, Mr. Chavez is standing between breaches, outlet pipe is at right of picture, 7/16/98.

BLMID - 0003, Costillo Group #1, Dam #5, ID No. 20114
Picture 2, looking upstream into largest breach.
Tape is 12' to bottom of hole from hand, 7/16/98.

BLMID - 0003, Costillo Group #1, Dam #5, ID No. 20114
Picture 3, looking upstream into smaller breach. Tape is showing 8' to top of crest, 7/16/98.

Costillo Group #1 Dam #6

These are my notes which were taken on July 16, 1998. The weather was warm and clear. BLMID - 0287, ID No. 20101, built in 1950. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 12' x 508' x 8'.

This dam has been overtopped. The dam is not breached - it's down to its last 18-inches in the right corner. We started at the left spillway and abutment. We found the marker intact. There are mice holes and a depressed crest in this corner. Note that this dam has two spillways - one at each end. The left spillway filled in from natural drainage to east.

There is sagebrush on the upstream, but the downstream face is gone! We found sink holes and rodent holes. The upstream face has a water/wave action erosional scar.

The inlet pipe is open; it has some trash inside. It is 40-inches tall, and internally it is 8-feet down to the elbow. There is slight evidence that piping may have started around outlet pipe and around the base of the riser pipe.

The right spillway is slightly scoured. As we investigated from downstream, we found that the left spillway has 12-feet deep head cut up through center (top was still functioning, but more water came this way).

Notes for spreadsheet entry: Condition - U (Overtopped):spillway

BLMID - 0287, Costillo Group #1, Dam #6, ID No. 20101
Picture 1, looking upstream at the outlet - tape is showing 11' to top of dam.
Note the outlet pipe, 7/16/98.

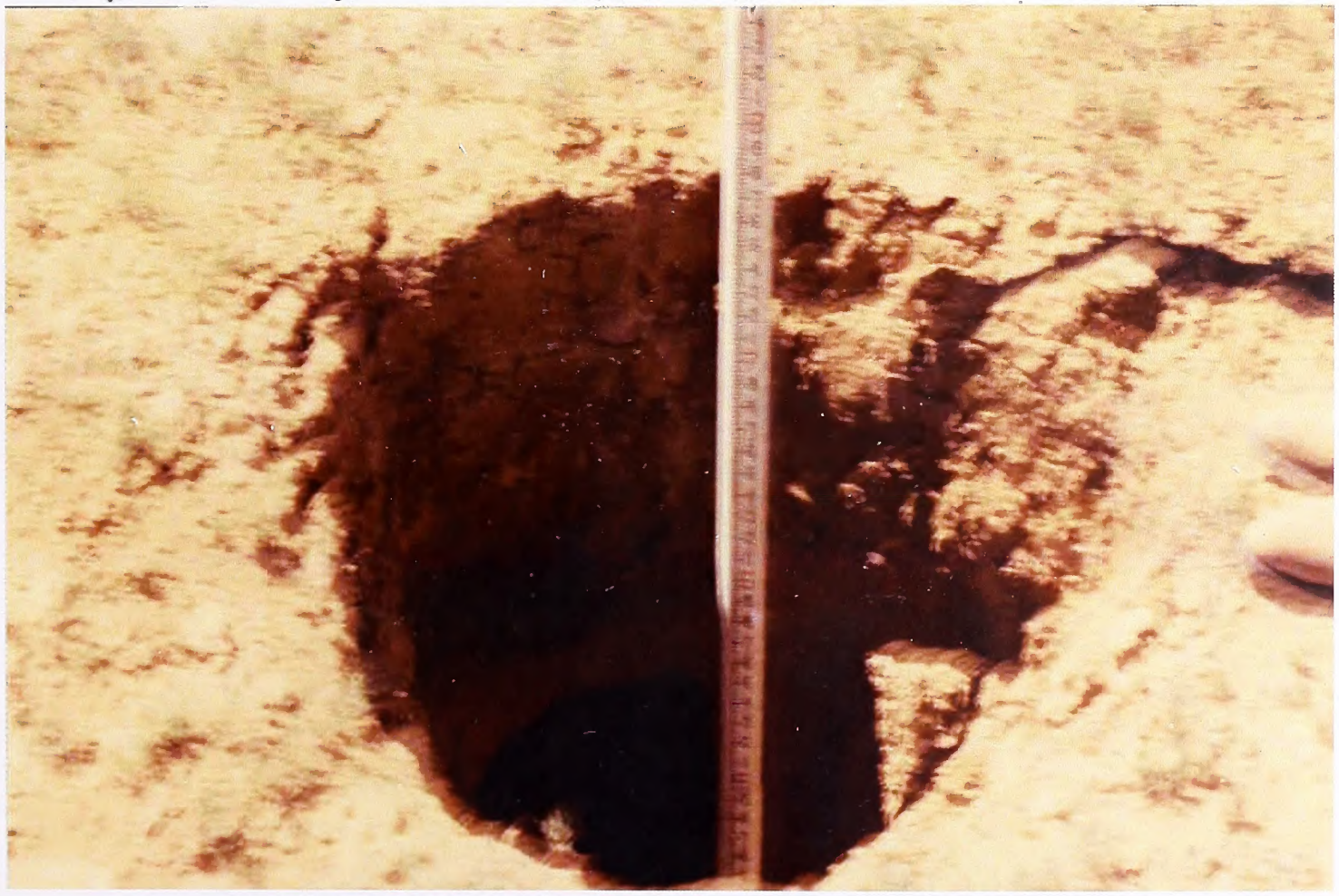
Costillo Group #2 Dam #1

These are my notes which were taken on July 13, 1998. The weather was warm and sunny. BLMID - 0009, ID No. 20095, built in 1951. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 15' x 657' x 6'.

We started at the left abutment. The left abutment is against a sandstone ridge. This dam has been over-topped. This is my original log: At 50-feet downstream face has washed vertical and slumped away. The headcut is at the toe. At 100-feet the downstream face completely washed into headcut. Estimated to be 50-feet to bottom. At 160-feet the over-toping has cut through crest. Again the remnant of the downstream face is intact. At 200-feet one 10'-wide drop (vertical) for 50 feet. At 200 to 210-feet there are erosion holes in the crest. At 230 to 270-feet the downstream face remains intact. At 285 to 290-feet there are sink holes (vertical) downstream and on the crest. At 305 to 310-feet there is a 36-inch vertical shaft which is 10-feet deep. There is an exit shaft at 320 to 325-feet. This outlet is 5-feet down from crest which is about 15-feet downslope and it looks like a cave. Between 325 to 400-feet the downstream face is almost intact. At 408-feet is the next most serious erosion. At 435-feet there is the mechanism for a low outlet gate upstream; the downstream face slightly eroded. At 495-feet there is dam failure on both sides; there is headcuting along the upstream toe from the right side. From here to the right abutment there is progressive loss of the downstream face toward the right abutment. At 510-feet is the first vertical cut from crest to toe.

Theory: Overtopped and finally breached at right abutment. There were some sort of concrete abutments for flash boards? This dam failed in 1994 and its failure contributed to the failure of Cornfield Wash Diversion dam located downstream.

Because of the disappointing results of earlier picture taking, we revisited this dam later. Notes for spreadsheet entry: Condition - U (breached); inlet, outlet.



BLMID -0009, Costillo Group #2, Dam #1, ID No. 20095
Picture 1, Sink hole upstream face at 305-319', 7/13/98.

BLMID -0009, Costillo Group #2, Dam #1, ID No. 20095
Picture 2, Sink hole upstream face at 305-319,' showing location in reference to crest, 7/13/98.

BLMID -0009, Costillo Group #2, Dam #1, ID No. 20095
Picture 3, Outlet of sink hole at 305-319,'downstream, 7/13/98.

BLMID -0009, Costillo Group #2, Dam #1, ID No. 20095
Picture 4, Downstream damage close to left abutment, 7/13/98.

BLMID -0009, Costillo Group #2, Dam #1, ID No. 20095
Picture 5, Downstream damage where remanent of face remains, 7/13/98.

BLMID -0009, Costillo Group #2, Dam #1, ID No. 20095
Picture 6, Erosion potholes along the crest, 7/13/98.

BLMID -0009, Costillo Group #2, Dam #1, ID No. 20095
Picture 7, Erosion potholes along the crest, 7/13/98.

BLMID -0009, Costillo Group #2, Dam #1, ID No. 20095
Picture 8, Erosion potholes along the crest, 7/13/98.

BLMID -0009, Costillo Group #2, Dam #1, ID No. 20095
Picture 9, Damage done downstream by overtopping, 7/13/98.

BLMID -0009, Costillo Group #2, Dam #1, ID No. 20095
Picture 10, Looking down crest upstream side. 7/13/98.

BLMID -0009, Costillo Group #2, Dam #1, ID No. 20095
Picture 11, Failure of right abutment from upstream. 7/13/98.

BLMID -0009, Costillo Group #2, Dam #1, ID No. 20095
Picture 12, Failure of right abutment from rock outcrop on right side, 7/13/98.

BLMID -0009, Costillo Group #2, Dam #1, ID No. 20095
Picture 13, Pipe line installed through the spillway, 7/13/98.

BLMID -0009, Costillo Group #2, Dam #1, ID No. 20095
Picture 14, Failure of right abutment from downstream, 7/13/98.

BLMID - 0009, Costillo Group #2, Dam #1, ID No. 20095
Picture 1, looking at the entire downstream face from the road, 8/14/98.

BLMID - 0009, Costillo Group #2, Dam #1, ID No. 20095
Picture 2, looking at the entire downstream face from the road, 8/14/98.

BLMID - 0009, Costillo Group #2, Dam #1, ID No. 20095
Picture 3, looking down crest from left to right, damage on down and upstream faces, 8/14/98.

BLMID - 0009, Costillo Group #2, Dam #1, ID No. 20095
Picture 4, low water gate control valve down upstream face, 8/14/98.

BLMID - 0009, Costillo Group #2, Dam #1, ID No. 20095
Picture 5, looking across upstream face and headcut in sediment, 8/14/98.

BLMID - 0009, Costillo Group #2, Dam #1, ID No. 20095
Picture 6, looking downstream through breach in right abutment, 8/14/98.

Costillo Group #2 Dam #2

These are my notes which were taken on July 13, 1998. The weather was warm and sunny. BLMID - 0298 Costillo Group #2, Dam #2 , ID No. 20096, built in 1951. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 13' x 375' x 6'. This dam is claimed by Dorothy Toledo, she calls it "her" dam.

We drove to the middle of the downstream toe, and started there and walked to the right abutment. Rabbitbrush (minor), sage (essentially dead), and Chico on the downstream face. Rounded crest (no crest left). There is a 30-inch water (wave) action scouring has removed most of upstream slope. There is sediment to within four feet of remaining crest. "Neighbors" have dredged sediment from fill to completely block the spillway - therefor added 80-feet to dam.

Marker OK (left abutment). Fifty-five feet to the right, across the crest from the marker is a two-foot diameter sink hole at the sediment/upstream face. Horizontally from hole, water is piping through dam, although not straight through. It exits on the downstream face about 8-feet lower than the crest or four-feet below the entrance. Roughly, it exits the dam 30-feet up from downstream toe. The water "lifts" about 12 to 18-inches to exist dam through a 12-inches circular hole (the hole is deeper internally).

Dam is heavily eroding on the downstream face. I didn't see signs of rodent activity. Today there is no evidence of inlet or outlet works.

Note for spreadsheet entry: Condition - U (cavity); spillway.

County Line Tank

These are my notes which were taken on August 14, 1998. The weather was warm and clear. BLMID - 0164, ID No. 00041, built in 1969. The map coverage used was the USGS quadrangle map "Canada Calladita." Dimensions from the worksheet are 20.6' x 1050' x 10'.

We started at the left abutment. The crest is rounded, uneven and crooked. The reservoir is full of water. The upstream face has one salt cedar (several around the reservoir), fourwing saltbush, snakeweed, sunflowers and Chico. Downstream face has fourwing saltbush and snakeweed. This slope has lost ½-feet (up and down) judging by plant clumps. Overtopped slightly. We found the 1983 marker OK.

This dam has two inlets and two outlets (by dowsing); all buried. The dual outlets are also evidenced by two outlet channels. There are also Salt cedars in these channels.

Spillway clean (snakeweed), but has been used often enough to start headcutting at outlet - inviting the larger headcut this way. So far, headcut downstream is about 3-4 feet deep to the larger one. Continual cattle use of trail has allowed erosion to completely cut through crest. Notes for spreadsheet entry: Condition - P; Spillway, inlets, outlets, salt cedar and fourwing saltbush.

E. and J. Montoya Detention Dam

These are my notes which were taken on August 5, 1998. The weather was warm and clear. BLMID - 2289A, ID No. 20028, built in 1956. The map coverage used was the USGS quadrangle map "Guadalupe." Dimensions from the worksheet are 15' x 710' x 9'.

We started at the right abutment. We found the 1956 and 1983 markers OK. The spillway is sloughing-in from the right side. Juniper, fourwing saltbush and rabbitbrush in spillway.

The dam is made with loamy fill with fine gravel. The downstream slope has rabbit, fourwing saltbushes, snakeweed and a Salt cedar at the outlet. The upstream slope has rabbitbrush and fourwing bushes and snakeweed; Salt cedar upstream around pond.

The Rebar trash rack is OK, but rusty. The concrete headwall is OK. The CMP outlet is OK. There may be some undercutting of the box.

Cow trail allowing erosion to middle of crest. Small slump on the upstream face (3-feet x 50-feet). I found a seep cavity on the downstream face; 3-feet (vertical) from top. Prairie dog holes. Mice holes downstream toward bottom.

Clean out channel, extend outlet downstream, check the scouring under box, but no blanket. Notes for spreadsheet entry: Condition - F; Check seep - drilling, outlet, salt cedar, rabbitbrush and fourwing saltbushes and rodents.

E. and J. Montoya Detention Dam

These are my notes which were taken on August 5, 1998. The weather was warm and clear. BLMID - 2289B, ID No. 20031, built in 1956. The map coverage used was the USGS quadrangle map "Guadalupe." Dimensions from the worksheet are 16.1' x 360' x 7'.

We started at the left abutment. We found the 1984 marker OK. Chico, fourwing saltbush, and juniper in spillway. Spillway is sloughing in from the natural side. fourwing saltbush on the downstream face. Four-wing fourwing saltbush on the upstream face and salt cedar in reservoir and upstream face. At the right side I found the old marker broken off.

At 100 feet from the marker is a cavity in the crest that is connected with a cavity under the inlet box, that is connected to huge cavity in the dam. This cavity is huge (deeper than the original 16 feet) and very camouflaged. The hole in the crest indicates that it has been sloughing-in and further collapse of the top would endanger any human, livestock or wildlife.
Notes for spreadsheet entry: Condition - U (Cavity); Safety, spillway, salt cedar and fourwing saltbush.

BLMID - 2289B, E. & J. Montoya Detention Dam, ID No. 20031
Picture 6, looking along the crest; skylight hole to the cavity underneath, 8/5/98.

BLMID - 2289B, E. & J. Montoya Detention Dam, ID No. 20031
Picture 1, looking at downstream face, Mr. Chavez is at the opening of the cavity, 8/5/98.

BLMID - 2289B, E. & J. Montoya Detention Dam, ID No. 20031
Picture 2, looking at downstream face and cavity opening, 8/5/98.

BLMID - 2289B, E. & J. Montoya Detention Dam, ID No. 20031
Picture 3, close up of cavity; pieces of the outlet pipe and
the sunshine from the hole in the crest, 8/5/98.

BLMID - 2289B, E. & J. Montoya Detention Dam, ID No. 20031
Picture 4, looking at upstream face, inlet box, and cavity entrance, 8/5/98.

BLMID - 2289B, E. & J. Montoya Detention Dam, ID No. 20031
Picture 5, looking at upstream face, inlet box, and cavity entrance, 8/5/98.

E. Aragon Detention Dam

BLMID - 1307, ID No. 20061, built in 1950. The map coverage used was the USGS quadrangle map "Arroyo Empedrado." Dimensions from the worksheet are 9.6' x 651' x 5'.

Poor weather delayed visiting this dam as a team. Mr. Chavez returned to the site on December 10, 1998. He reported that sediment has been pushed over the dam and into a headcut that is cutting around the left side. The Condition Survey of November 10, 1983 reported a longitudinal crack, solution cavity, and spillway erosion. They could not find intake structure or outlet. Pictures show salt cedar and possible patch.
Note for spreadsheet entry: Spillway, Intake, outlet, and salt cedar.

E. Argon Retention Dam #1

These are my notes which were taken on August 1, 1998. Weather threatening, actually started to rain and we needed to retreat to better roads. BLMID - 1308?, E. Argon Retention Dam # 1 (there is a duplication of "1308" shown on the quadrangle map). The map coverage used was the USGS quadrangle map "Arroyo Empedrado." We were not given any information on this dam (We were actually looking for BLMID - 1307).

Started right abutment and spillway. Spillway was filled full of a homemade dike. Breached. This dam certainly qualifies for the large dam ranking and for maintenance.
Note for spreadsheet entry: U (breached); spillway.

BLMID - 1308, E. Argon Retention Dam # 1
Picture 1, looking upstream through spillway. There is a new dike from the center of the pickup to the right abutment, 8/1/98.

BLMID - 1308, E. Argon Retention Dam # 1
Picture 2, looking upstream at breach- note the concrete pipe, 8/1/98.

BLMID - 1308, E. Argon Retention Dam # 1
Picture 3, looking upstream through the erosion channel in breach, 8/1/98.

BLMID - 1308, E. Argon Retention Dam # 1
Picture 4, looking upstream at new headcut in sediment. There is a new berm within the reservoir to hold runoff and separate the headcut from the sediment in the left side. Yellow flowers are in the remnant sediment, 8/1/98.

BLMID - 1308, E. Argon Retention Dam # 1
Picture 5, looking right to left down the crest. Can see the new berm and yellow flowers in remnant sediment, 8/1/98.

E. Argon Retention Dam #2

BLMID - 1308, E. Argon Retention Dam #2, ID No. 20065, built in 1950. The map coverage used was the USGS quadrangle map "Arroyo Empedrado." Dimensions from the worksheet are 6.5' x 828' x 5'. We did not visit this dam.

On November 10, 1983, Mr. Beck found erosion channels, solution cavities, obstructed spillway, and a patched breach.

Notes for spreadsheet entry; Condition U (patch and cavities); spillway and salt cedar.

E. Gutierrez Detention Dam

These are my notes which were taken July 14, 1998. The weather was warm and clear. BLMID - 1274, ID No. 20150, built in 1950. The map coverage used was the USGS quadrangle map "Deer Mesa." Dimensions from the worksheet are 8' x 725' x 7'.

The left abutment falls off like there was a spillway, but if it exists - it needs help. I recommend to clean out the sagebrush and make a distinct channel.

We started at the left abutment. The dam is made with loamy, clayey soil. The embankment is more clayey at the corner and this fill extends to a patch. From approximately 300 to 450-feet there seems to be a patch in the dam. At 250-feet there is a low spot in crest.

Vegetation consists of primarily sagebrush, but rabbitbrush exists near the center. At 500-feet the rabbitbrush is too thick to walk through. Two juniper bushes along crest slightly downstream.

At 175-feet, a badger hole in upstream face may be piping but I couldn't see outlet! I found rodent holes downstream and rodent holes upstream without any indication of real seepage.

The crest is wide enough for road but completely rounded and the tire tracks leave impressions. Road completely disappears at the corner.

Below the downstream toe there is a fresh small wash draining from left to right which runs into two small washes draining from right to left. I believe that these washes were caused when the dam over-topped. When leaving the dam we noticed another wash coming from below right abutment.

Theory - the dam overtopped and then breached. In the area of thick rabbitbrush, the brush is bent over with debris up in the branches. The breach having been patched.

Notes for spreadsheet entry: Condition - U (patched); spillway, rabbitbrush and rodents.

E. Montoya Detention Dam

These are my notes which were taken on August 8, 1998. The weather was warm and clear. BLMID - 2376, ID No. 20034, built in 1957. The map coverage used was the USGS quadrangle map "Cerro Parido." Dimensions from the worksheet are 17' x 845' x 8'.

We started at the left abutment. We found the 1983 marker OK. The crest is uneven and crooked with lots of gravel in the fill. The crest is better after the wingwall. There are Juniper bushes on the crest. We found several badger holes: Some in the crest, left of conduits (between left and right conduits) and active. Another badger hole near the right conduit. Another badger hole upstream face but maybe it is contained in the wingwall.

The upstream face has snakeweed, fourwing saltbushes, Chico, lots of salt cedar, and Cholla. The downstream face has snakeweed, fourwing saltbushes, and Chico.

The trash rack is OK. All exposed concrete is OK. The pipe is OK. The outlet is OK (has a natural spilling basin) and working.

A cattle trail is breaching the joint between the right abutment and wing wall which is shortcutting the spillway. Spillway has fourwing saltbush, juniper, and Cholla. There is erosion into spillway, but very little cutting out of spillway. There are saltcedar in the outlet channel. I recommend we reshape the left wing wall (300' x 6').

Notes for spreadsheet entry: Condition - F; Spillway, badgers and saltcedar.

E. Montoya Detention Dam #3

These are my notes which were taken on August 8, 1998. The weather was warm and clear. BLMID - 2258, E. Montoya Detention Dam #3, ID No. 20026, built in 1956. The map coverage used was the USGS quadrangle map "Guadalupe." Dimensions from the worksheet are 19.7' x 352.6' x 6'.

We started at the right abutment. We found both (1956, 1983) markers OK (Project S&M 488A - L. Montoya Detention Dam). The dam is made with loamy fill, uneven crest. Downstream face is clean except fourwing saltbush. Upstream face has fourwing saltbush, lots of saltcedar and rabbitbrush. At one place the rabbitbrush extends to the crest.

This dam appears to have had three pipes (dowsing) and may have an internal drop structure. However, we did not locate any inlets or outlets.

Spillway is sloughing in from sides. Has Pinon and Cholla. Needs cleaning and redefined. Notes for spreadsheet entry: Condition - P; Spillway, inlets, outlets, saltcedar, rabbitbrush and rodents.

E. Montoya Detention Dam #5

These are my notes which were taken on August 7, 1998. The weather was warm and clear. BLMID - 2481, E. Montoya Detention Dam #5, ID No. 20037, built in 1958. The map coverage used was the USGS quadrangle map "Cerro Parido." Dimensions from the worksheet are 12.4' x 860' x 5.0'.

This dam has a cavity through it. We started at the right abutment at spillway. The crest is uneven and crooked. Fourwing saltbush upstream and rabbitbrush and Chico (minor).

There is a large cavity through the dam beginning around the inlet works. This cavity is roughly six feet by four feet. Downstream there is a 20-feet deep headcut to the cavity outlet. Someone (Allottee?) has built a berm which diverts the water discharging from the cavity to another downstream pond.

Notes for spreadsheet entry: Condition - U (Cavity).

BLMID - 2481, E. Montoya Detention Dam #5, ID No. 20037
Picture 1, looking at upstream face, inlet box and cavity entrance, 8/7/98.

BLMID - 2481, E. Montoya Detention Dam #5, ID No. 20037
Picture 2, looking at downstream face and cavity exit, 8/7/98.

BLMID - 2481, E. Montoya Detention Dam #5, ID No. 20037
Picture 3, looking at downstream face and cavity exit - broader view. 8/7/98.

E. Montoya Detention Dam #9

These are my notes which were taken on August 8, 1998. The weather was warm and clear. BLMID - 2477, ID No. 00030, built in 1958. The map coverage used was the USGS quadrangle map "Canada Calladita." Dimensions from the worksheet are 12' x 1170' x 6'.

We started at the right abutment. The crest is crooked and uneven. Upstream face has lots of saltcedar, Chico and fourwing saltbush. Downstream face has fourwing saltbush, Chico and a plant that Mr. Chavez calls "Wacko." One cattle trail near left abutment - has cut crest 24-inches. We found the 1983 and 1958 markers OK, at left abutment ("Project 603, E. Montoya Dirv. No.6").

The trash rack is OK. The square, concrete inlet box is OK. The CMP pipe is Ok, but no protection coating left. The outlet is covered, but open. Mr. Chavez found another pipe to the left about 80'. Two other pipes to the right!

A three to four foot wave action erosion scar has left the concrete box floor about six-inches above sediment.

Notes for spreadsheet entry: Condition - P; Outlet and saltcedar.

E. Montoya Detention Dam #11

These are my notes which were taken on August 8, 1998. The weather was warm and clear. BLMID - 2479, ID No. 20027, built in 1956. The map coverage used was the USGS quadrangle map "Guadalupe." Dimensions from the worksheet are 11.9' x 715' x 3'.

We started at the left abutment. We found the 1983 marker OK. The spillway is full of fourwing saltbush. It needs redefinition.

The crest is quite even, but crooked due to natural erosion. There are several cattle trails. Both faces have fourwing saltbush. There is one saltcedar in reservoir, and the downstream face has snakeweed. There is a minor erosional scar. Rodent holes of prairie dogs and gopher.

There appear to have been three pipes. One pipe was found with its red painted trash rack sticking out of sediment.

Notes for spreadsheet entry: Condition - P; Spillway, inlets, outlets, saltcedar and rodents.

E. Montoya Detention Dam Section 27

These are my notes which were taken on August 8, 1998. The weather was warm and clear. BLMID - 2259, ID No. 20025, built in 1956. The map coverage used was the USGS quadrangle map "Guadalupe." Dimensions from the worksheet are 8.9' x 411' x 5'.

We started at the left abutment. We found the 1983 and 1956 markers OK on the right abutment (L. Montoya Ret. Dam (S&M 488B)). Upstream crest has fourwing saltbush, Chico, saltcedar, and snakeweed. Downstream crest has fourwing saltbush, snakeweed, and rabbitbrush.

I found a seep hole (two feet wide by six inches deep) upstream at the place where the outlet conduit pipe should be. The inlet headwall or the outlet headwall is lying downstream about 300 feet. Dam originally had three conduit works (Dowsing).

Spillway has fourwing saltbushes, Cholla, and juniper; it needs cleaning and reshaping. Natural erosion and minor scouring in bottom.

Notes for spreadsheet entry: Condition - U (cavity); spillway, inlets, outlets, saltcedar, rabbitbrush, and rodents.

E. Montoya Sec. 15 Detention Dam

These are my notes which were taken on August 5, 1998. The weather was warm and clear. BLMID - 2022, E. Montoya Section 15 Detention Dam, ID No. 20035, built in 1954. The map coverage used was the USGS quadrangle map "Cerro Parido." Dimensions from the worksheet are 17.6' x 650' x 6.0'.

We started at the right abutment. We found the 1954 marker, "Project 411 BS&M, E. Montoya Detention Dam." There are fourwing saltbush and Chico on the crest. Upstream face has fourwing saltbush and dead sagebrush. Downstream face has fourwing saltbush, dead sage, and Chico. From 85-feet to 120-feet is a definite drop along the crest. It is either a slump or has been overtopped. There are Prairie dog holes upstream. Downstream face has two sink holes. There are heavy erosional scars downstream. Spillway is sloughing in from the far side and dike. Prairie dog city in Spillway.

Notes for spreadsheet entry: Condition - P; Spillway, drilling, saltcedar and fourwing saltbush.

Encino Detention Dam # 2

These are my notes which were taken on July 11, 1998. The weather was warm and partly cloudy. BLMID - 2269, Encino Detention Dam # 2, ID No. 00031, built in 1964. The map coverage used was the USGS quadrangle map "Johnson Trading Post." Dimensions from the worksheet are 9' x 1559' x 6'.

Bedrock showing in spillway. The dam is made with loamy fill. Rivulets to top of dam. No crest width at either fences, due to cattle trails.

There is bad wave erosion on the upstream face (three to four feet high (by stand pipe)). Support ring and standpipe are rusting. The trash rack is starting to rust. The pipe is open but it has standing water in the bottom. A large amount of erosion on the downstream face has fully covered outlet.

Found Chico (Manzanita) and sage. Rodent (prairie dog) holes near the crest - 190-feet left of standpipe. It is conveying rain water through the crest of the dam. On the far side the dam crest loses shape and looks like a mound.

Note for spreadsheet entry: Condition - P; outlet, Chico, rabbitbrush and rodents.

Encino Detention Dam # 26

These are my notes which were taken on July 11, 1998. The weather was warm and partly cloudy. BLMID - 2274, Encino Detention Dam # 26, ID No. 20120, built in 1964. The map coverage used was the USGS quadrangle map "Johnson Trading Post." Dimensions from the worksheet are 13' x 1661' x 8'.

Sparse sagebrush in spillway, more sagebrush on the left wing wall. Minor erosion on the up and down stream faces. The dam is made with loamy, clayey fill material (allegator cracks). Cattle trail crosses at wing wall and dam perpendicular to the crest. It has cut the crest of the dam 2-3 feet. It is causing erosion both ways. In the curve of the dam the soil (fill) changes (?) (no more allegator cracks). Here there is the introduction of rabbitbrush which becomes thick in the corner. Now there is more erosion along crest of dam (but not the wingwalls). Rivulets to top of dam at end of curve is now eroding across crest. This complete breaching of the crest shape happens eight times. Rodent holes near crest of dam in sage.

The stand pipe is only exposed one-foot to 15-inches. It still has most of its protective coating. It was dry. Mr. Chavez said that the outlet pipe was open but half full of silt.
Note for spreadsheet entry: Condition - F; rodents. Could be patched.

Encino Detention Dam # 28

These are my notes which were taken on July 11, 1998. The weather was warm and partly cloudy. BLMID - 2276, Encino Detention Dam # 28, ID No. 20122, built in 1964. The map coverage used was the USGS quadrangle map "Johnson Trading Post." Dimensions from the worksheet are 12' x 1101' x 7'.

The dam is made with loamy fill. Vegetation consists of rabbitbrush and sagebrush. There is hard erosion on both upstream and downstream faces. Minor wave action erosion/escarpment. Rivulets forming from top of dam. There are some remaining clumps of grass - occasionally.

Spillway has washed down to sandstone floor. The headcut is to the sandstone.

Outlet pipe open and clear. Standpipe is clear and has a 3 foot exposure. There remains protective coating inside and no rust. There is a trail down the ridge.
Note for spreadsheet entry: Condition - F; spillway drop, rabbitbrush and sagebrush.

Encino Detention Dam # 31

These are my notes which were taken on July 11, 1998. The weather was warm and partly cloudy. BLMID - 2277, ID No. 00032, built in 1964. The map coverage used was the USGS quadrangle map "Mesa Portales." Dimensions from the worksheet are 12' x 679' x 5'.

The crest is eroded badly enough that the crest is no longer level. Vegetation consists of rabbitbrush and sagebrush and an eight foot tall Juniper tree on the upstream face. Rock in the fill is exposed by erosion. Wave action escarpment on the upstream face is three to four feet.

Spillway is fairly clean.

Stand pipe has only 18-inches exposed, and I guess maybe 18-inches of perforations are buried. There is minor rust on the stand pipe and trash rack! The outlet pipe is open but has a rock in the opening and is ½ full of silt. I found a rodent burrow on the downstream face by the outlet.
Note for spreadsheet entry: Condition - P; outlet, rabbitbrush and sagebrush and juniper, wave action and rodents.

Encino Detention Dam # 32

These are my notes which were taken on July 11, 1998. The weather was warm and partly cloudy. BLMID - 2278, Encino Detention Dam # 32, ID No. 20088, built in 1964. The map coverage used was the USGS quadrangle map "Mesa Portales." Dimensions from the worksheet are 6' x 1000' x 6'.

The spillway is over "in-place" sandstone. The headcut has eroded to the sandstone. The dam is made with loamy soil. Sage and rabbitbrush which is tall in spots. Some erosion on the downstream face. Thick brush and minor erosion on the upstream face. In spots the rabbitbrush is too thick to walk through. I found erosion on the downstream face. I did not find any evidence of a stand pipe or other appurtances.
Note for spreadsheet entry: Condition - P; drop structure in spillway, rabbitbrush and sagebrush.

Encino Detention Dam # 40

These are my notes which were taken on July 12, 1998. The weather was warm and sunny. BLMID - 2530, Encino Detention Dam #40, ID No. 00035, built in 1965. The map coverage used was the USGS quadrangle map "Johnson Trading Post." Dimensions from the worksheet are 9' x 2149' x 9'.

The access road is washing out to the left of the left abutment and it needs water-bars. 160-feet from left abutment a cattle trail has allowed erosion to remove 18-inches from the crest of the dam. The dam is made of loamy, clayey soil. There are places where erosion rivulets have reached the crest (it becomes rounded). Upstream face seems to be eroding worse than downstream. Lots of Sage and rabbitbrush. The dam looks green from a distance because of the rabbitbrush.

The 24-inch riser pipe and braces are in good shape; surface rust. Stand pipe in good shape but losing protective coating. Outlet pipe is straight through. Trash rack is inverted into pipe and collecting trash. Outlet open and the pipe seems to be in good shape.

In the gradual curve of the dam, there seems to be a lenses of grayer material in this area about one-foot down from the crest. A collection puddle on the crest of the dam is funneling water onto the downstream face. Actually we have a level crest for 300-feet basically around a patch. For a distance of approximately 70-feet, the upstream face of the dam has had a patch added about four years ago. Mr. Chavez said this is where there was piping through the dam. New material was brought in to cover the area of piping. It is unknown if the fill was trenched out first, or it was simply covered. There is no sense of piping now.

On the downstream face at this patch there is small channeling. And a 10-feet section of slumping - its hard to tell if it is fresh. At the time of patch, they cleared the brush out. There are rodent holes in the new patch.

There is lots of brush in the spillway. It doesn't seem to ever have been used (Mr. Chavez).

Remarkably, there seems to be minimal evidence of wave action scouring on the upstream face.

Note for spreadsheet entry: Condition - U (patched); Spillway, rabbitbrush and sagebrush, and rodents.

Encino Detention Dam # 40 Drop Structure

These are my notes which were taken on July 12, 1998. The weather was warm and sunny. Encino Detention Dam #40 Drop Structure (my own identifier). The map coverage used was the USGS quadrangle map "Johnson Trading Post."

Downstream there are a couple of diversion dams and a drop structure. We were not given any information on these structures. The diversions are directing the water around to the detention dam or the drop structure. The drop structure has an angle dam approximately 600 feet long made out of loamy silt. It is not in bad shape but has lots of rabbitbrush and sagebrush. It has formed an area of 1-1/2 acres with sediment surface. It is eroding badly downstream and upstream.

The drop outlet structure is a 30-inch CMP pipe with a trash rack installed. Now the trash rack is broken (inverted). There is silt to the top of inlet (pipe) and no perforations inside.

Note for spreadsheet entry: Condition - F; inlet, rabbitbrush and sagebrush.

Encino Detention Dam # 46

These are my notes which were taken on July 13, 1998. The weather was overcast and warm. BLMID - 2282, Encino Detention Dam #46 , ID No. 00033, built in 1964. The map coverage used was the USGS quadrangle map "Mesa Portales." Dimensions from the worksheet are 22' x 583' x 9'.

We started at the left abutment. We found the marker OK. The spillway is quite clean, but the sandstone floor is showing.

The dam is made from sandy-appearing soil. There are rocks in the fill. There are lots of ants, perhaps because of the sandy texture. At 140-feet toward center of dam from road at right side the composition of fill changes. Underneath and then replacing the sandy fill is a more tan loamy clayey fill that is eroding faster. In this layer are rodents.

There is erosion upstream and downstream. The erosion channels are reaching the crest. The fill is very soft - every cow track is leaving a ½" deep scar, which is accelerating erosion. Lots of Sage and rabbitbrush, and some grass. Where the rabbitbrush is thick, it's almost too thick to walk through. Road crossing dam on the right side has eroded crest by 12-18-inches.

The trash rack needs straightening. Bottom of stand pipe is rusting. Support ring (only) shows rusty. Water is running through. Outlet pipe is open but needs cleaning out (underwater). Notes for spreadsheet entry: Condition - F; Inlet, outlet, rabbitbrush and sagebrush and rodents.

Encino Detention Dam # 46-A

These are my notes which were taken on July 13, 1998. The weather was overcast and hot. BLMID - 2285, Encino Detention Dam #46-A, ID No. 20087, built in 1964. The map coverage used was the USGS quadrangle map "Mesa Portales." Dimensions from the worksheet are 16' x 593' x 6'.

We started at the right abutment. We found the marker OK. The dam is made with loamy soil. Rounded crest, moderate erosion both slopes. Primarily sagebrush but some rabbitbrush and one or two Chico plants; grass showing.

Spillway (right abutment) seems not to have a distinct channel carrying water away from face of dam. Once past the abutment, the water is free to spread across terrain and run into a new headcut. At 160-feet a small berm was built perpendicular to divert water further downstream. The stand pipe is in good shape. The trash rack is inverted and broken. Its protective coating is largely there - even on the bottom (invert) of outlet pipe. The outlet is plugged.

Downstream there is a headcut that has formed a "Y" and is approaching both groins. It is approximately 7-feet deep at the head; 11-feet deep at the intersection; and 20-50-feet deep just downstream. The entire "Y" needs to be shaped in order to keep the outlet open.

At 270-feet the right headcut is 15-feet from downstream toe of dam. At 400-feet the second arm of the "Y" is 15-feet from the toe of the dam. In this area the downstream side seems to be eroding quickly. At 415-feet rivulets are cutting crest. At 470-feet crest is breached from weathering (loss of about 6-inches) At 550-feet a trail and weathering has caused the loss of 18-inches of the crest for 10'. At 520-feet another small dike was built at 75-feet from toe of dam to carry runoff downstream. I recommend investigating the construction of a new dike off left abutment.

Notes for spreadsheet entry: Condition - F; spillway, outlet, rabbitbrush and sagebrush.

BLMID - 2285, Encino Detention Dam #46-A, ID No. 20087
Picture 1, Looking upstream at outlet and "Y," 7/13/98.

BLMID - 2285, Encino Detention Dam #46-A, ID No. 20087
Picture 2, Looking upstream at right "Y" (10' deep) or left abutment, 7/13/98.

BLMID - 2285, Encino Detention Dam #46-A, ID No. 20087
Picture 3, looking upstream at left "Y" (7') or right abutment 7/13/98.

BLMID - 2285, Encino Detention Dam #46-A, ID No. 20087
Picture 4, looking at new cutting around left abutment, 7/13/98.

Encino Detention Dam #49

These are my notes which were taken on August 14, 1998. The weather was warm and clear. BLMID - 2290, Encino Detention Dam #49. The map coverage used was the USGS quadrangle map "Mesa Portales."

Storm from last night filled the reservoir, but note that the intake is working and the reservoir is well below the top of the riser pipe.

BLMID - 2290, Encino Detention Dam #49
Picture 1, looking across the reservoir from left to right from a stockpile from construction of the new spillway, 8/14/98.

Encino Detention Dam # 63

These are my notes which were taken July 14, 1998. The weather was warm and clear. BLMID - 2728, Encino Detention Dam #63, ID No. 00037, built in 1966. The map coverage used was the USGS quadrangle map "Taylor Ranch." Dimensions from the worksheet are 16' x 984' x 9'.

We started at the left abutment. We found the marker OK, but note that recently the dam has lost two inches of fill around the pipe. The spillway is fairly clean. It looks like it was probably never used; even the prickly pear is dying.

Toward right abutment the crest is pretty good and shows original width but seems to be eroding fast. This is a layered dam - mustard colored stuff (fill) on the top of more brown loamy clayey stuff (Allegator weathering). The different layers are weathering differently upstream.

There are rocks in the fill. There is a two-foot wave action scar on the upstream face. On May 13, 1984, Mr. Meyerpeter reported a three foot deep sinkhole with possible piping underneath the dam. I took two pictures of this sink hole on the right upstream side of the dam.

I found rodent holes almost on top, on the downstream face, and again about ½ way down the upstream face. Closer to the right abutment downstream, there is a prairie dog city (this is opposite of the sink hole). There are a number of one-foot deep headwalls starting to the left of the city and across from the sink hole. I really agree with Mr. Meyerpeter that water is passing underneath the dam.

Inlet riser and outlet pipe open. Riser pipe is rusting badly. Forty inch trash rack bent but operational.

Note for spreadsheet entry: Condition - P; sinkhole and rodents.

BLMID - 2728, Encino Detention Dam #63, ID No. 00037
Picture 1, Sink holes in sediment floor on upstream side of dam's right abutment, 7/14/98.

BLMID - 2728, Encino Detention Dam #63, ID No. 00037
Picture 2, Previously recorded sink hole on upstream side of dam's right abutment, 7/14/98.

Encino Detention Dam # 64

These are my notes which were taken July 14, 1998. The weather was warm and clear. BLMID - 2729, Encino Detention Dam #64, ID No. 20128, built in 1966. The map coverage used was the USGS quadrangle map "Taylor Ranch." Dimensions from the worksheet are 10' x 866' x 8'.

We started on the left abutment. As I walked I made reference to my location according to two ponds downstream.

Spillway needs cleaning and slight reshaping.

The dam is made with loamy, clayey soil (shows allegator cracks). Below the loamy, clayey fill is a yellowish colored fill that is eroding faster. The shape of the crest is gone; actually, the entire crest essentially gone in places. It almost appears that there was a loamy cap that is disappearing. By the middle of the second pond the yellow colored layer of fill disappears. Here the fill is very soft. Here there is heavy rabbitbrush and heavy erosion from dam, otherwise the dam is covered with rabbitbrush and sagebrush.

Water discharging from the right downstream groin has brought headcut to within 20-feet of toe of dam. There is a layer of sandstone that serves to be stopping further cutting.

In the area of the second pond, the upstream face has wave action erosion 6-12'. At the fence, the game trails are eroding the crest - both sides of fence. At a point 45-feet left of fence, I found rodent holes on the downstream face and bad rodent holes on the upstream face.

The inlet pipe is open, but flush with ground and its protective coating is still intact. Trash rack is good - still painted. Outlet pipe has headwall and drops down by cottonwood tree - covered.
Notes for spreadsheet entry: Condition P; spillway, rabbitbrush and rodents.

Encino Detention Dam # 81

These are my notes which were taken July 14, 1998. The weather was warm and clear. BLMID - 2733, Encino Detention Dam #81, ID No. 20149, built in 1966. The map coverage used was the USGS quadrangle map "Deer Mesa." Dimensions from the worksheet are 15' x 934' x 9'.

We started at the right abutment. We found the marker OK. The uneven crest is catching water in low spots of the road that is accelerating rivulets to each side and down each face at times. Tire tracks are 6-inches below crest. Top of dam is brown loamy soil, rivulets to edge of the road. Lighter brown soil around dam is eroding faster than the dam. At the center of the dam the fill material has more clay - only as cap. There is lighter fill material underneath that is eroding faster. Erosion of face is worse on the downstream slope particularly in the lower levels of fill. Toward the right side the soil changes color - more to the color of the lower level (cap is gone). At right abutment erosion is worse, but drop is less. The upstream face has a 12 to 18-inch wave action escarpment.

Vegetation consists of Sage and rabbitbrush, sunflowers, and some grass on the downstream slope.

The inlet pipe is open, but still has a log inside. There is no trash rack. Support structure is buried. The portion of pipe with perforations is clean except it is starting to rust where water has ponded over the internal plug. The outlet pipe open and clear. It still has some protective coating.

There is erosion from the dam into the spillway because of the road and it needs clearing.

Downstream is a small pond with culvert drop structure. It has a hinged Rebar trash rack, concrete header wall and is open; with some trash at rack. Lower end has been cleaned recently and is clear.
Notes for spreadsheet entry: Condition - P; spillway, sage and rabbitbrush.

Encino Detention Dam # 83

These are my notes which were taken July 14, 1998. The weather was warm and clear. BLMID - 2734, Encino Detention Dam #83, ID No. 00039, built in 1966. The map coverage used was the USGS quadrangle map "Deer Mesa." Dimensions from the worksheet are 22' x 813' x 7'.

We started at the right abutment. We found the marker OK. The spillway is very clean, and has primarily sage and a few rabbitbrush.

The dam is made with loamy clay - crest form is gone, only a rounded mound remains. Layered fill with a darker chocolate colored on top. Lighter brown underneath then darker on the bottom. More grass is present in the lighter brown layer. At left abutment there is a cattle trail that has depressed the crest 6 to 12-inches. The dark chocolate colored layer defines the left abutment and is darker than the lighter brown soil around it which is eroding faster.

There are two large saltcedars growing on the upstream face and one juniper. There is a larger stilling basin above the reservoir seems to be catching the silt, making this dam very clean! There is some small rodent activity in most of the bottom layer - upstream and downstream. Erosion cutting downstream from downstream toe.

There is actual cutting into the sediment surface upstream of the inlet pipe. The inlet pipe open (6-feet of perforations and 15-inches of pipe showing), but sediment is being carried past at every precipitation event. The trash rack is intact and good (still painted). The support structures are showing, and are still painted (shows rust where paint is gone). The pipe is clean, but there is no coating showing. At the outlet, there is erosion from the left of outlet.
Note for spreadsheet entry: Condition - F; saltcedar, clean out reservoir.

Encino Detention Dam # 85

These are my notes which were taken July 14, 1998. The weather was warm and clear. BLMID - 2739, Encino Detention Dam # 85, ID No. 00040, built in 1966. The map coverage used was the USGS quadrangle map "Deer Mesa." Dimensions from the worksheet are 12' x 1261' x 9'.

We started at the right abutment. We found the marker OK. The dam is made of chocolate-colored, loamy soil. There seems to be very subtle layers in the fill of the dam. The crest needs to be brought up to uniform slope and rodent treated. There is a road through crest of dam. Erosion much worse on the loamy upstream face. About ½ way start getting erosion channels from road, primarily upstream. As the dam gets taller, the erosion channels down downstream face get more severe. Deeper into the reservoir there are three wave action escarpments; 1 to 1½-feet each. This is by the outlet of a pond in the right side of reservoir. A cattle trail crossing has little effect on the downstream and crest but a real rut on the upstream face.

Vegetation consists of sagebrush and crested wheat grass. The first several hundred feet downstream face is essentially clear except for grass. There is rabbitbrush close to riser.

There is a headcut which is 120 ± feet downstream from right abutment and parallels the toe of dam. Below the dam there are two catchment basins formed by dikes separating dam from headcut. The dam's outlet has a drop in it (internal drop structure). The lower outlet pipe is open, but the floor of the headcut is higher than the invert of the outlet pipe. The head cut on the right side of outlet pipe has cut into the soil to within 16-feet of the toe or 13-feet behind concrete thrust block. It is cutting into the natural floor of the dam. Water is coming from the downstream face of dam. There is another dike protecting the outlet along the left side. The only water that seems to be forming this headcut is coming from the downstream face. Note that the soil (floor) around this out is so powdery that I sank to my ankles in places. The dike on the left side of outlet pipe needs repair. Mr. Chavez made a suggestion to raise the outlet opening by cutting into outlet pipe further up.

The riser pipe does not have trash rack. It extends four feet from the sediment to bottom of perforations and is open. Its anchor is slightly rusty and pipe next to ground is starting to rust.

The spillway is clean. I would recommend that the spillway channel be better defined close to the left abutment (no problem yet) - but continued use could bring headcut to dam.
Note for spreadsheet entry: Condition - P; Inlet, outlet, spillway, rodents.

BLMID - 2739, Encino Detention Dam # 85, ID No. 00040
Picture 1, Menacing headcut from downstream, 7/14/98.

BLMID - 2739, Encino Detention Dam # 85, ID No. 00040
Picture 2, Broader picture of downstream face from downstream.
See thrust block, headcut, floor and crest, 7/14/98.

Encino Detention Dam # 86

These are my notes which were taken July 14, 1998. The weather was warm and clear. BLMID - 2740, Encino Detention Dam #86, ID No. 20148, built in 1966. The map coverage used was the USGS quadrangle map "Deer Mesa." Dimensions from the worksheet are 19' x 750' x 7'.

Spillway is essentially clear and really clean. We found the marker good and clear. We started at the left abutment. The dam is made with layered fill; loamy soil and some white colored soil. Both sides are very soft, I sink 2 ½-inches with every step. There is no crest form left. The upstream face has two (cuts) benches formed by wave action (12 to 18-inches each). Vegetation consists of sagebrush, grass, and a few rabbitbrush. Right third of the dam is quite clean. The downstream is clean and upstream the brush gradually stops. Wheat grass becomes more plentiful. One hundred feet from right abutment erosion has eaten through crest 18-inches down. Rodent (prairie dogs) in white material (only one was found).

Stand pipe is clear, 52-inches from ground, 12-inches diameter. Support pipe rusted below perforations. The trash rack looks new. The outlet of pipe is covered. It has been cleared and now the channel floor is above pipe line (inverted syphon).

Notes for spreadsheet entry: Condition - P; outlet, rodents.

Encino Detention Dam # 97

These are my notes which were taken on July 12, 1998. The weather was warm and sunny. BLMID - 2526, Encino Detention Dam # 97, ID No. 20124, built in 1965. The map coverage used was the USGS quadrangle map "Johnson Trading Post." Dimensions from the worksheet are 9' x 1991' x 6'.

Intentionally breached. Rodent activity had earlier caused piping. In about 1983-1984, under force account, the dam was breached an a channel was cut and a Gabion drop structure installed. The original riser and outlet structure is still in place and working.

I walked this breached dam to compare its condition with others (for my own experience).

The trash rack and support angle irons are rusting. The pipe is clean, but protection gone.

The crest between the outlet and spillway is completely rounded. In places the original crest gone for lengths of 50-feet; lowered by at least one-foot. After the fence there is some semblance of the crest for 200'. The dam is made with loamy clayey fill (allegator cracking). There seems to be a layering of fill based on color variations. It looks like the first fill layer was from spillway out (more mustard-colored). There is erosion on both faces, but it is worse on the downhill side. Very slight wave action scouring.

I found rodent holes along the crest. There are more abundant rodent holes in upstream face, particular in loamy soil next to spillway. I found more rodent holes by the breach. There still appears to be seep hole or piping outlets on the downstream face - 30-inches left of outlet pipe. I found Gopher holes digging out the yellow (mustard colored) fill.

Markers intact at the left side by the spillway (no sign).

Spillway clean! Outcropping of sandstone in spillway.

Note for spreadsheet entry: Condition - G; riprap, rodents.

Encino Detention Dam # 98

These are my notes which were taken on July 11, 1998. The weather was overcast. BLMID - 2528, Encino Detention Dam # 98, ID No. 00036, built in 1965. The map coverage used was the USGS quadrangle map "Johnson Trading Post." Dimensions from the worksheet are 7' x 1428' x 8'.

We found the marker at the right abutment and it is OK. Spillway has sage and rabbitbrush to be cleared. There is an outcrop of sandstone between spillway and left abutment.

Wide crest (used to be able to drive across it according to Mr. Chavez). The fill in the dam has two-toned coloration on the downstream face - tan on top and mustard below. This coloration continues through the dam. Top is loamy and clayey (allegator cracking (drying)). Erosion is showing on both faces, but, the mustard colored layer is holding up better. Rivulets to the middle of the top crest of dam (downstream) - actually found erosion through the top (rivulets to top on both faces). I found two cattle trails across the crest.

Vegetation consists of Sage and rabbitbrush; mostly sage through middle section of dam.

Erosion from the upstream face of the dam has reached to the top of the standpipe. Protective coating in the riser pipe is gone from tops of the corrugations. The trash rack is bent. The outlet pipe has a drop after it crosses the road (internal drop structure). Outlet is 3/4 full of silt.
Note for spreadsheet entry: Condition - P; Inlet, spillway, sage and rabbitbrush.

Encino Detention Dam #112

These are my notes which were taken July 11, 1998. The weather was warm and partly cloudy. BLMID - 2237, Encino Detention Dam #112, ID No. 20123, built in 1964. The map coverage used was the USGS quadrangle map "Johnson Trading Post." Dimensions from the worksheet are 10' x 1395' x 8'.

Spillway is fairly clean, but has some grass clumps. The dam is made with loamy fill. Mainly sagebrush on the upstream face with some rabbitbrush. There is a surprising amount of grass on the downstream face. There are rodent holes in the crest of the dam. I also found rodent holes at the outlet.

Standpipe has 24-inches remaining exposed. Trash rack is clean. Has lost most of its protective coating. It is dry inside. The reservoir area has collected silt to the bottom of the perforations.

There is good grass on the upstream face at the water fluctuation levels and no wave action escarpments. There is a juniper bush on the downstream face at the right abutment. Rivulets from the top on the downstream face - right side. The impression of the crest is a round mound of dirt.
Note for spreadsheet entry: Condition - F; rabbitbrush and rodents.

Encino Detention Dam #113

These are my notes which were taken July 14, 1998. The weather was warm and clear. BLMID - 3535, Encino Detention Dam #113, ID No. 20127. The map coverage used was the USGS quadrangle map "Taylor Ranch." Dimensions from the worksheet are 10' x 606' x 9'.

We started at the left abutment. We found both markers OK. The spillway is fairly clean (mice in spillway).

The dam does not seem to be layered and is made with loamy soil. The original shape of the crest is gone. Rivulets to top of dam. The upstream face has a one-foot wave action scar. There is erosion along the downstream, right groin that has exposed the sandstone interface. Vegetation starts off as primarily sagebrush, with more rabbitbrush on the upstream face.

Outlet pipe is open; it has an internal drop structure. The outlet pipe is coated inside. The inlet riser is almost flush (2 to 4-inches) with sediment and rusty. The trash rack is OK and open. Notes for spreadsheet entry: Condition - G: rabbitbrush.

Encino Detention Dam #114

These are my notes which were taken July 14, 1998. The weather was warm and clear. BLMID - 3501, Encino Detention Dam #114, ID No. 20125. The map coverage used was the USGS quadrangle map "Taylor Ranch." Dimensions from the worksheet are 16' x 966' x 9'.

Spillway fairly clean - has 1 pine tree (Christmas tree). We started at the right abutment. We found both markers OK. Entrance road has cut into the crest as it crosses the length of dam.

The dam is made with loamy soil is which is fostering grass growth. Close to the end of the curve, where the road straightens, the soil has more clay in it at this point. The change seems to promote less cover and less rodents. Upstream there is a two-foot wave action scar.

Vegetation seems to be lots of rabbitbrush and minor sagebrush.

The riser pipe extends only one foot above the sediment and it is rusty. There is coating inside and it is open. The trash rack is in good condition. The outlet is plugged because the erosion has covered the pipe and its headwalls. There is a berm built to stop erosion, but is not working. The berm needs to be heightened as erosion is still occurring.

A cattle trail to the top of the crest has eroded the road but not the crest. Right after the cattle trail there is a sink hole in the middle of crest which is 18-inches deep. It is funneling water back into reservoir. Mr. Chavez used his spade to follow which way the water was going.

I found rodent holes on the upstream face (close to road) and in the downstream face, particularly in a large rabbitbrush. There is a badger hole in the side of the wash. Notes for spreadsheet entry: Condition P; outlet, rabbitbrush, wave action and rodents.

Encino Detention Dam #115

These are my notes which were taken July 14, 1998. The weather was warm and clear. BLMID - 3502, Encino Detention Dam #115, ID No. 20126. The map coverage used was the USGS quadrangle map "Taylor Ranch." Dimensions from the worksheet are 11' x 1070' x 8'. This dam was intentionally breached due to piping around the outlet pipe (there is a drop structure). The spillway is clean. We found both markers OK. The dam is made with loamy soil. Notes for spreadsheet entry: Condition - G.

F. Lovato Detention Dam Sec. 17

These are my notes which were taken on August 1, 1998. The weather was cloudy, threatening to rain. BLMID - 0992, F. Lovato Detention Dam Section 17, ID No. Unknown, built in 1949. The map coverage used was the USGS quadrangle map "Arroyo Empedrado." Dimensions from the worksheet are 10.7' x 443' x 5'.

We started at the right abutment. Scouring is happening on the right downstream groin - this water could be easily diverted into the reservoir. The road crosses the crest on the right side causing erosion. An old cattle trail has caused cutting in the crest about 24-inches deep. The crest is rounded and crooked - loamy fill. Found a rodent/seep hole in the crest. Fresh rodent hole (prairie dog) in the crest on left side; large rodent/seep hole inlet on the downstream face.

Vegetation consists of saltcedar and "Chico" on the upstream face. Reservoir has lots of saltcedar. Found snakeweed and fourwing saltbush on the downstream face (some fourwing saltbush on the upstream face also). Found "Chico" (Manzanita?) above the outlet on the downstream face and saltcedar in the outlet channel.

The stand pipe is OK - clean and open, but no trash rack. There is a seep hole next to the riser pipe and the existing drainage is running into the seep (It may be entering the pipe in a perforation below the sediment level or seeping through the dam, I couldn't tell). However, the water exiting through the dam is coming through the exit channel. I could see the top of the outlet pipe, which was clean, but it was mostly submersed in the outflow.

Found a 10-feet deep headcut through spillway cutting 20-feet (horizontally) into the sediment. Sagebrush and young salt ceder in spillway. We found the 1949 marker at the left abutment which was marked "Felix Lovato, C-188F, 1949."

Note for spreadsheet entry: U (breached spillway); spillway, saltcedar and rodents.

BLMID - 0992, F. Lovato Detention Dam Section 17
Picture 1, new headcut through the spillway into the sediment.
Looking upstream from left to right from left abutment, 8/1/98.

Flat Top Retention Dam

These are my notes which were taken on July 18, 1998. The weather was warm and clear. BLMID - 1898, Flat Top retention Dam, ID No. 20112, built in 1964. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 9' x 540' x 9'.

We started at the left abutment. We found the both markers (1984, 1964) and they are in good shape. The spillway is poorly defined and contains sparse sagebrush and Chico. Erosion is filling it in from left (natural) side. There are erosion channels out of spillway.

The dam is made with loamy, clayey fill and is fairly clean. A constructed rectangle water hole in sediment has lowered the left abutment. Upstream is a one to two-foot wave action scar.

Vegetation consists of Sage and rabbitbrush.

I found two sink holes and several badger holes. The following is a log of what I found measured by paces from the marker. At 70-feet is a badger hole on the left within one foot of the crest. At 85-feet, another badger hole at corner of crest (where corner would have been) (left side). At 115-feet is a badger hole in crest (left). At 182-feet another badger hole (right) in crest. There is a big badger hole at right abutment.

At 230-feet is where I suspect would be the outlet pipe, if there is one, noted by green grass out into reservoir.

Note for spreadsheet entry: Condition - P; Spillway, inlet?, Outlet?, riprap and Badgers.

Forked Tree Detention Dam

Weather conditions prevented us from visiting the site, and we never returned. BLMID - 2181, Forked Tree Detention Dam, ID No. 20113, built in 1966. The map coverage used was the USGS quadrangle map "Wold Stand." Dimensions from the worksheet are 17' x 749' x 9'.

The Condition Survey of August 15, 1990, reported conduit pipe plugged and outlet could not be found.

Notes for spreadsheet entry: outlet.

Garcia - Aranda Detention Dam

These are my notes which were taken on August 5, 1998. The weather was warm and clear. BLMID - 1891, Garcia Aranda Detention Dam, ID No. 20021. The map coverage used was the USGS quadrangle map "Guadalupe." Dimensions from the worksheet are 13.7' x 270' x 5'.

We started at the left abutment. We found the 1983 marker OK. The dam is quite full, holding very clear water.

The spillway has been intentionally filled-in.

The dam is made with loamy, clayey fill.

Vegetation includes fourwing saltbush and one saltcedar downstream. Upstream large saltcedars dominate from water to crest.

Mr. Chavez located pipe which is buried (dowsing).

I believe that this dam has been overtopped and a new crest has been added in places.

Notes for spreadsheet entry: Condition - U (Patched); Spillway, riprap and saltcedar.

BLMID - 1891, Garcia Aranda Detention Dam, ID No. 20021
Picture 1, looking from left abutment across reservoir, 8/5/98.

BLMID - 1891, Garcia Aranda Detention Dam, ID No. 20021
Picture 2, wave action erosion along right wing-wall, 8/5/98.

BLMID - 1891, Garcia Aranda Detention Dam, ID No. 20021
Picture 3, headcutting into the embankment at the outlet pipe, 8/5/98.

BLMID - 1891, Garcia Aranda Detention Dam, ID No. 20021
Picture 4, looking at downstream face at some of the overtopping erosion, 8/5/98.

Grande View Retention Dam

These are my notes which were taken on July 25, 1998. The weather was warm and overcast. BLMID - 2239, ID No. Grande View Retention Dam, built in 1966. The map coverage used was the USGS quadrangle map "Tinian." Dimensions from the worksheet are 12' x 530' x 8'.

We started at the left abutment. We found the 1984 marker. Water is eroding around left abutment. The dam is made with a reddish, loamy fill. It is eroding fast for a 1966 dam.

Vegetation consists of sagebrush, fourwing saltbush, and snakeweed. Sage in spillway - needs minor cleaning - and its elevation needs checking. We had to hurry to leave this dam because it was starting to rain and the road would become impassible with precipitation (muddy).

Notes for the spreadsheet entry: Condition - F; Spillway, sage and fourwing saltbush.

Gurule East Reservoir

These are my notes which were taken on July 29, 1998. The weather was warm and clear. BLMID - 0457, Gurule East Reservoir, ID No. 20053. The map coverage used was the USGS quadrangle map "San Luis." Dimensions from the worksheet are 11' x 301' x 6'.

This dam is old and even complicated because of the original design and the subsequent alterations (it has been drastically worked over). The road to the dam leads to a house at the downstream toe with an out-building for storage to the right of the house and a outhouse behind the house.

We started at the center of the dam, looked at the left abutment then walked around to the right abutment. The pond has been dredged and piled on the crest behind the house. In places the crest is approximately 55-feet wide. At left abutment is control rod for low water valve lying by the fence completely removed from its original location. There is a spillway (outlet) for the dam that drains down between the house and the out building. Further left, the abutment is hard to distinguish. Where the fill ends there then is a series of natural spillways (3) with earth between them until a rock ledge to the far left. These natural spillways have been eroded and actively used. One of them has been "bladed" by heavy equipment.

In the area of the dam where there is obviously fill, there is lots of rabbitbrush and sage. The actual dam very uneven. I found where the dam has been overtopped. Bad scours on the downstream face at low point of old original dam. Rabbitbrush on the upstream face; fourwing saltbush and Cholla on the downstream face. Old outlet channel downstream was found, it runs behind the house and outhouse. Cottonwood tree in this channel. Nearby this outlet channel, we found two chunks of CMP pipe (15 to 18-inches in diameter).

Safety - Mr. Chavez thinks that this house is occupied in winter.

Notes for spreadsheet entry: Condition - U (patched); Safety, inlet, outlet, and rabbitbrush.

BLMID - 0457, Gurule East Reservoir, ID No. 20053
Picture 1, looking upstream at downstream face and house just below the toe, 7/29/98.

Hogan Dam

These are my notes which were taken on July 17, 1998. The weather was warm and clear. BLMID - 0414, Hogan Dam, ID No. 20108, built in 1954. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 14' x 600' x 7'.

We started at the left abutment. We found the 1984 marker (no sign of 1954). Spillway has been used and is eroding; it may now be lower than designed. The spillway discharges into an adjacent watershed. Wingwall and spillway need reshaped and cleaned.

The dam is made with white (or very light tan) loamy, clayey soil. The downstream face is very clean. The crest of dam is gone. It is very uneven, but we could still drive across. The upstream face is quite clean and grass covered (sage). The tall three-foot wave action erosion now stabilized. Human trash is scattered about.

The inlet pipe is open; about one-foot above the sediment. The pipe extends eight-feet deep into sediment. It is 15-inches inside diameter. The trash rack is intact. Rusting on the support rods - all surface rust, but CMP is rusting. Small 3-feet log is in riser pipe. No sign of piping around the inlet: no sign of piping at the outlet.

Drilled grass is doing OK on the downstream face at the right abutment. I found a small sink hole one-foot down from crest about 45 to 50-feet from the right abutment. I found rodents along the upstream face right abutment extending from 45 to 120 feet.

Notes for spreadsheet entry: Condition - P; spillway, embankment, riprap and rodents.

BLMID - 0414, Hogan Dam, ID No. 20108
Picture 1, looking at the downstream face of dam at the disjointed outlet pipe, 7/17/98.

Homestead Corner Dam

These are my notes which were taken on July 24, 1998. The weather was warm but overcast and cloudy. BLMID - 1351, ID No. 20142, built in 1956. The map coverage used was the USGS quadrangle map "Tinian." Dimensions from the worksheet are 14' x 582' x 8'.

We started at the right abutment. We found the 1956 and 1984 markers in good shape. The dam is made with loamy soils and lots of "dime" size rocks. The crest well rounded - lost shape. A cattle trail has accelerated the erosion of the crest. Vegetation consists of snakeweed and sagebrush. There is a new headcut starting in reservoir area (moving upstream from the reservoir area).

Here are my notes on the defects: There is a badger hole on the right abutment. There are several sink holes, the first located 100-feet from pin (marker) on the upstream side of the crest. Just to the right of outlet there are two prairie dog holes within 2-feet from crest. One looks like it is acting as a seep for drainage from crest.

The track rack is in place and rusty. The support frame is in place and rusty. The CMP pipe is in place, but filled with rocks and starting to rust. The outlet of the CMP pipe is open and clear. The spillway opening is parallel to crest. The expected headwall is starting to cut back toward spillway. The right abutment is against a shaley, sandstone outcrop.
Notes for spreadsheet entry: Condition - P; Spillway (need drop?), reservoir embankment, sagebrush and rodents.

Houston - Cordova Detention Dam #1

These are my notes which were taken on July 15, 1998. The weather was warm and clear. BLMID - 2295, Houston-Cordova Detention Dam #1, ID No. 20083, built in 1956. The map coverage used was the USGS quadrangle map "Mesa Portales." Dimensions from the worksheet are 16' x 620' x 9'.

Starting with the right abutment. The access road continues across the crest. We found the 1984 marker OK. The dam is made with loamy, clayey soil with sandstone rocks. The crest level is not uniform, and there is erosion on both sides. The downstream face seems much too steep and exhibits major erosion (I suspect that it may have overtopped). Upstream an old three to four-foot wave action escarpment seems to form a series of three benches. It is better to the left of the inlet box. At 200-feet from marker there is a one-foot diameter sink hole at toe of upstream face that seems to carry back into reservoir.

There is lots of grasses, and lots of rabbitbrush in center of dam on both sides. The rabbitbrush is too thick to walk through in places. Most of sage is dead (surrounding area may have been sprayed).

Upstream from the left abutment and spillway a headwall is forming! Another is forming in the spillway. Sage in spillway (needs reforming). The headcut downstream is cutting back to road. These headcuts are endangering this dam.

The inlet box sound and open. Trash rack was in good shape but rusty. Outlet of pipe not found (erosion from dam).

Notes for spreadsheet entry: Condition - P; Spillway, outlet, riprap and rabbitbrush.

Houston - Cordova Detention Dam #3

These are my notes which were taken on July 15, 1998. The weather was warm and clear. BLMID - 2294, Houston-Cordova , ID No. 20084, built in 1956. The map coverage used was the USGS quadrangle map "Mesa Portales." Dimensions from the worksheet are 18' x 320' x 8'.

We started at the at right abutment. We found both markers (1984, 1956). The dam is made with loamy, clayey soils with sandstone rocks. It may have a greyer loamy cap. At the edge of the spillway the greyer cap material looks like spillway material, and the erosion is worse.

Here the Sage has been sprayed and is mostly dead. There is rabbitbrush which diminishes from the outlet works left.

At 8-16-feet down there are rodents in downstream slope. I found rodent activity beyond the last rabbitbrush on the downstream face.

We found the inlet box completely silted; only the good trash rack shows.

We found one pinion pine, three juniper and one pine in the spillway. The spillway berm is not being counted as crest, but is 400-feet long x 6-7-feet tall. Fill from headcut upstream from spillway has carried silt and may have raised spillway floor a couple of feet.

Notes for spreadsheet entry: Condition - P; spillway, inlet, outlet, rabbitbrush, juniper and pine.

Houston - Cordova Diversion Dam #2

BLMID - 2321, ID No. 20079, built in 1956. The map coverage used was the USGS quadrangle map "San Pablo." Dimensions from the worksheet are 6' x 850' x 9'.

We did not visit this site. The Condition Survey of April 14, 1984, reported erosion in the spillway.

Notes for spreadsheet entry: spillway.

Ilfield Community Diversion

These are my notes which were taken on August 3, 1998. The weather was warm and clear. BLMID - 2156, ID No. 200006, built in 1954. The map coverage used was the USGS quadrangle map "Ojito Spring." Dimensions from the worksheet are 8' x 1012' x 8'.

We started at the left side. We found the 1955 marker and 1983 marker OK on the right side. This dam has breached and been fixed by Native Americans with a massive patch. Along the patched section the crest has about 3-feet of new fill and from downstream it looks like a new dam. When they added new fill they did not remove old vegetation and therefore it looks new except for juniper. In this section the downstream face is eroding quickly (I suspect poor compaction). The original, older section is very clean upstream and downstream. From the reservoir side it still looks like the old dam.

There are lots of Salt Ceder in the original reservoir area. There are fourwing saltbushes all along the face and Salt Ceder along the high watermark mark near inlet to conduit. There is piping around old pipe outlet in channel.

I found rodent holes in new crest (prairie dog) and Gopher holes on the downstream slope. The spillway floor has eroded to bedrock. Spillway has Salt Ceder, rabbitbrush and fourwing saltbushes.

Notes for spreadsheet entry: Condition - U (Patched); Spillway, saltcedar and rodents.

Ilfield Community Diversion

These are my notes which were taken on August 3, 1998. The weather was warm and clear. BLMID - 2157, Ilfeld Community Diversion, ID No. 20007, built in 19540. The map coverage used was the USGS quadrangle map "Ojito Spring." Dimensions from the worksheet are 13' x 2100' x 9'.

We had to walk into this dam location. It has been patched. Started on the right abutment. We found the 1955 and 1983 markers OK. Old sections have round and uneven crests. Small wave action erosion.

Fourwing saltbushes upstream and downstream faces. Salt Ceder in reservoir area. Someone built a dike in the spillway which breached probably at the same time as the rest of the dam breached. The spillway needs reengineering and reshaping. It has Salt Ceder in the spillway which indicates possible ground water movement.

I walked to the dam first thing on Tuesday morning (August 4, 1998) to take a picture.

Notes for spreadsheet entry: Condition - U (patched); Spillway, Salt Ceder and fourwing saltbush.

BLMID - 2157, Ilfeld Community Diversion, ID No. 20007
Picture 1, from right side (near) abutment showing sediment pushed over original dam, 8/4/98.

Ilfield Community Reservoir

These are my notes which were taken on August 3, 1998. The weather was warm and clear. BLMID - 2158, Ilfield Community Reservoir, ID No. 20005, built in 1954. The map coverage used was the USGS quadrangle map "Ojito Spring." Dimensions from the worksheet are 15' x 934' x 9'.

We started at the right abutment. This dam has a large cavity through the dam, a glory hole. The dam is made with loamy, clayey fill with lots of fine gravel. The crest is uneven and not level. The upstream face is essentially gone due to a bad wave-action erosional scar. The wingwall off the right abutment is breached. We found the 1983 marker OK.

Downstream face fairly clean. Fourwing saltbush, Cholla and one saltcedar. Upstream fourwing saltbush and several saltcedars.

Mr. Chavez found 3 pipes.

On the left abutment the spillway has washed considerably almost breaching into the sediment.

Notes for spreadsheet entry: Condition - U (cavity); Spillway and saltcedar.

BLMID - 2158, Ilfeld Community Reservoir, ID No. 20005
Picture 1, looking at upstream face and entrance to cavity, 8/3/98.

BLMID - 2158, Ilfeld Community Reservoir, ID No. 20005
Picture 2, looking at entrance to cavity, 8/3/98.

BLMID - 2158, Ilfeld Community Reservoir, ID No. 20005
Picture 4, looking at downstream face at the outlet of cavity.
Did the box come through hole? 8/3/98.

BLMID - 2158, Ilfeld Community Reservoir, ID No. 20005
Picture 5, looking at downstream face from the reservoir perspective. The outlet of the cavity is in the center of the picture, the constructed discharge pipe is by the saltcedar, by the truck, as determined by dowsing, 8/3/98.

Ilfield Detention Dam # 4

These are my notes which were taken on August 3, 1998. The weather was warm and clear. BLMID - 23385, Ilfield Detention Dam #4, ID No. 00083, built in 1957. The map coverage used was the USGS quadrangle map "Ojito Spring." Dimensions from the worksheet are 17' x 666' x 5'.

We started at the left side. Spillway has rock floor and rock far wall. It needs a survey to see if it is at the correct level. However, it has a 6-8 foot headcut at opening (downstream). Looks like it needs a drop structure. Very rocky wingwall.

The crest round and crooked. Heavy weathering. We found the 1983 marker OK. I found a seep hole near the top, downstream.

The downstream face covered with fourwing saltbush. Upstream face is covered with fourwing saltbush and Cholla. In places the brush is too thick to inspect the dam. There is one young saltcedar at the riser pipe.

There is a "prairie dog city" in the left abutment. Prairie dog hole downstream. Found several prairie dog holes upstream (closer to top). Mice holes on the upstream near right abutment.

The trash rack is in place, but has surface rust. The CMP pipe is clean but rusty.

Notes for spreadsheet entry: Condition - F; Spillway, drop structure, fourwing saltbush, saltcedar and rodents.

Ilfield Detention Dam # 5

These are my notes which were taken on August 3, 1998. The weather was warm and clear. BLMID - 2411, Ilfield Detention Dam #5, ID No. 20009, built in 1957. The map coverage used was the USGS quadrangle map "Ojito Spring." Dimensions from the worksheet are 7.3' x 369' x 9'.

We started at the right abutment. We found the 1983 marker OK. Spillway clean, but has erosion from both sides. Spillway seems unused - no scar marks.

Overtopped all along crest. It has washed out; breached with a 7 foot deep by 45 foot wide trench. There is a second breach 10-feet wide and 4-5-feet deep. Took picture which shows saltcedar, both breaches and power pole.

Downstream face is clean except for a couple of fourwing saltbushes. Upstream is clean except for new saltcedars around old pool in the sediment. One large saltcedar downstream.

Prairie dog holes off the right abutment at junction with wingwall. I found mice holes and seep holes.

Notes for spreadsheet entry: Condition - U (breached); 1 to 1-1/2 drops, saltcedar and rodents.

BLMID - 2411, Ilfeld Detention Dam # 5, ID No. 20009
Picture 1, looking at downstream face, scaring and both breaches, 8/3/98.

Ilfield Detention Dam # 6

These are my notes which were taken on August 4, 1998. The weather was warm and clear. BLMID - 2413, Ilfield Detention Dam #6, ID No. 00082, built in 1951. The map coverage used was the USGS quadrangle map "Sky Village." Dimensions from the worksheet are 17' x 826' x 6'.

We started at the left abutment. We found the 1983 project number with bullet hole in the pipe. The dam is made with loamy, clayey fill which is well eroded. There is a transverse crack and breach! On June 6, 1989, Mr Chavez noted the settlement over the outlet pipe and another settlement half way toward the right abutment. Fairly close to the left abutment, water has been flowing underneath the shell of the crest. I suspect this was a transverse crack, that, as a weak spot eroded first under water pressure. On September 11, 1983, Mr. Beck noted that the crest had sunk 2-inches over the outlet pipe. I believe that it has been patched at the site of the breach before. Top has been added to at some time in the past, and I assume it has been since 1989.

Vegetation consists of saltcedar and fourwing saltbush upstream - saltcedar and fourwing saltbush downstream.

The spillway has had enough action to clear out any sediment, but seems to be stable, sandstone. However, there is quite a drop into the head cut which may be considered for some energy dissipation device.

Notes for spreadsheet entry: Condition - U (breached); saltcedar and fourwing saltbush

BLMID - 2413, Ilfield Detention Dam #6, ID No. 00082
Picture 1, looking upstream across the crest, 8/4/98.

BLMID - 2413, Ilfield Detention Dam #6, ID No. 00082
Picture 2, looking downstream and showing the depth of the slanted cavity, 8/4/98.

BLMID - 2413, Ilfield Detention Dam #6, ID No. 00082
Picture 3, looking downstream at linear sink holes, 8/4/98.

BLMID - 2413, Ilfield Detention Dam #6, ID No. 00082
Picture 4, looking upstream at breach, 8/4/98.

BLMID - 2413, Ilfield Detention Dam #6, ID No. 00082
Picture 5, right behind Mr. Chavez (in picture 4) is another exit of several cavities. These cavities will add to the cost of any rehabilitation, 8/4/98.

BLMID - 2413, Ilfield Detention Dam #6, ID No. 00082
Picture 6, closeup of the largest cavity, 8/4/98.

BLMID - 2413, Ilfield Detention Dam #6, ID No. 00082
Picture 7, looking upstream through the breach, 8/4/98.

BLMID - 2413, Ilfield Detention Dam #6, ID No. 00082
Picture 8, looking upstream from edge of marsh for broader perspective, 8/4/98.

BLMID - 2413, Ilfield Detention Dam #6, ID No. 00082
Picture 9, looking downstream through breach, 8/4/98.

BLMID - 2413, Ilfield Detention Dam #6, ID No. 00082
Picture 10, looking downstream through breach, 8/4/98.

BLMID - 2413, Ilfield Detention Dam #6, ID No. 00082
Picture 11, looking downstream through clean spillway, 8/4/98.

J. Cordova Section 26 Detention Dam

BLMID - 1995, J. Cordova Section 26 Detention Dam, ID No. 20081, built in 1995. The map coverage is the USGS quadrangle map "San Pablo." Dimensions from the worksheet are 27' x 319' x 6'. We were given information on this site, but we did not visit the site.

We did not visit this dam. The Condition Survey of April 16, 1984, reported inlet and outlet problems, and that the spillway was eroding and headcutting.
Notes for spreadsheet entry: spillway, inlet and outlet.

J. Cordova Section 28 Retention Dam

These are my notes which were taken on August 10, 1998. The weather was warm and cloudy. BLMID - 1996, ID No. 20151, built in 1954. The map coverage used was the USGS quadrangle map "San Pablo." Dimensions from the worksheet are 15' x 455' x 5'.

We started at the left abutment. We found both pipes (1984, 1953) (Proj. 404A S&M Det. Dam JJ Cordova). Spillway has headcut to it with heavy gouging about four-inches deep. The dam is made with loamy, clayey fill. The crest is not straight; not even. The downstream face has Sage, rabbitbrush(heavy), Chico, and fourwing saltbush. Upstream face has saltcedar, Chico, and Heavy rabbitbrush. By dowsing, the dam has two pipes, but we could not find any inlets or outlets.
Notes for spreadsheet entry: Condition - P; Spillway, inlets, outlets, saltcedar and rabbitbrush.

J. A. Garcia Detention Dam

These are my notes which were taken on July 29, 1998. The weather was warm and clear. BLMID - 1247, J.A. Garcia Detention Dam, ID No. 20068, built in 1949. The map coverage used was the USGS quadrangle map "Headcut Reservoir." Dimensions from the worksheet are 11.4' x 670' x 7'.

We started at the right abutment. Spillway badly eroded. We found the 1983 marker bent. Headcut in spillway up to last wingwall. First 200-feet has new fill dirt over top and downstream slope. Sage and Juniper upstream.

Riser pipe clean, clear. No trash rack. Pipe is rusty under fill and has sticks in it. Outlet pipe is open. Riser is CMP - outlet is concrete.

Rest of dam downstream is clear. Upstream it has sagebrush, fourwing saltbush and juniper. The dam is made with loamy fill - uneven not straight. Rodents (prairie dog). Two prairie dog cities form bulges on the downstream slope. They are in a section with more red fill. Far left is very silty fill.

Notes for spreadsheet entry: Condition - P; Spillway, inlet, fourwing saltbush and rodents.

Joe Montoya Detention Dam

These are my notes which were taken on August 5, 1998. The weather was warm and clear. BLMID - 2025, Joe Montoya Detention Dam, ID No. 20030, built in 1954. The map coverage used was the USGS quadrangle map "Guadalupe." Dimensions from the worksheet are 16.1' x 670' x 7'.

We started at the left abutment. Spillway quite clean, has Cholla and small junipers. The crest is uneven and cracked; composed of loamy clay. Downstream slope has fourwing saltbush and is eroding heavy (natural erosion). Upstream slope has fourwing saltbush and saltcedar. It, too, has heavy natural erosion. I found a seep hole at downstream toe, left of first conduit. We found the inlet box and outlet of the second conduit. The inlet box is under a dead saltcedar. The outlet was working. At right side there are lots of seep holes in the side of a 5-foot deep channel which runs along downstream side of dam. Wave action erosional scar. We found the 83 and 54 markers OK. The second spillway is clean except juniper trees.

Notes for spreadsheet entry: Condition - P; drilling, saltcedars, juniper and fourwing saltbush.

Loca Mujer Diversion Dam

These are my notes which were taken on July 30, 1998. The weather was warm and overcast. BLMID - ????, Loca Mujer Diversion Dam, ID No. ????, built in 1954. The map coverage used was the USGS quadrangle map "Headcut Reservoir." We visited this dam naturally as part of BLMID - 2016, Maestas - Garcia Section 28 Detention Dam, ID No. 20071, but we did not have information concerning its physical attributes.

We started at the at the left abutment. This diversion dam carries the water from the spillway of BLMID - 2016, Maestas - Garcia Section 28 Detention Dam, ID No. 20071 to the drainage into BLMID - 2014, Maestas-Garcia section 29, ID No. 20073, across the drainage. The crest is no longer straight or even. The berm is layered - tan colored over brown colored. There are places where tan layer has completely washed off. At the fence and cattle trail is where the crest has been eroded one-foot to 18-inches.

From left to right the diversion is parallel to a rather vertical rock ledge. After this original ledge quits, the channel is getting erosion filling the channel from natural embankment right side. This channel need to be cleaned and redefined on the right side (opposite berm).

There is a sandstone ledge at outlet holding water in channel. It has eroded down below spillway elevation. Headcut is challenging the dam and the sandstone ledge. We found the 1954 marker as the Loca Mujer Division Dam.

Concerning vegetation: Clean downstream - sage upstream. Near the right end there are some fourwing saltbush and juniper in the channel.

I found one seep hole downstream about two-feet (vertical) from the top.

Notes for spreadsheet entry: Condition - P (seep hole); Spillway, drilling, drop structure, rabbitbrush, fourwing saltbush and juniper.

BLMID - 2016B, Loca Mujer Diversion Dam

Picture 1, looking upstream at outlet, rock foundation and headcutting into berm, 7/30/98.

BLMID - 2016B, Loca Mujer Diversion Dam
Picture 2, looking downstream from outlet at headcutting. Note compaction layers, holes in fill, and height of embankment, 7/30/98.

Maestas - Garcia Section 5 Detention Dam

These are my notes which were taken on July 30, 1998. The weather was warm and clear. BLMID - 2013, Maestas-Garcia Section 5 Detention Dam, ID No. 20069, built in 1954. The map coverage used was the USGS quadrangle map "Headcut Reservoir." Dimensions from the worksheet are 10.7' x 1611' x 8' (+ dike by spillway).

We started at the right side at end of spillway dike. Spillway eroding from both sides - has county road through it. Sagebrush, need to be cleaned and redefined. We found the 1954 (P.L. Head Cut Detention Dam (Project 4100)) marker OK. We found the 1983 marker bent over.

This dam is made with very loamy fill and is very soft. The crest is rounded, uneven and unaligned. The end of the right abutment is gone from erosion (cow trail), it is just a broad hump, but becomes defined at the corner. The dam has lost a foot of embankment everywhere. Both faces uneven due to erosion on an area 120-feet long where sage has retreated from crest. And same area has first a flatter then steeper downstream face. No evident of slump, but there may have been some fill added later. There is a three to four foot erosional wave action scar.

Dam is quite clean with Sage and fourwing saltbush on the upper side and top. Lots of sage litter in reservoir area and along upstream face. Another area of later fill and broader/lower top and lack of sagebrush. Taller older sage, on the right side, still remains on the upstream face.

The trash rack is in place and rusty. The concrete inlet box is essentially gone. It has been shored up with railroad ties, Rebar and wire. But it is working and open. Sediment to top of concrete - water is working, into the inlet pipe through the sides not the top.
Notes for spreadsheet entry: Condition - U (patched); Safety, spillway, riprap, and inlet.

Maestas - Garcia Section 28 Detention Dam

These are my notes which were taken on July 30, 1998. The weather was warm and overcast. BLMID - 2016, Maestas-Garcia Section 28 Detention Dam, ID No. 20071, built in 1954. The map coverage used was the USGS quadrangle map "Headcut Reservoir." Dimensions from the worksheet are 8.4' x 2484' x 8'.

We found the 1983 marker off of the left abutment where we started. The dam is made with loamy, clayey soil. It has lost its original crest, it is no longer straight, no longer level. There is a distinct bulge 2/3 of the way across the dam. Mr. Chavez, by dowsing, found pipe underneath the bulge. I suspect dam has been retopped through this center section. From 120-feet left of conduit pipe outlet to 100-feet right. Upstream face has a one-foot wave action scar. It was holding water within two feet of the high water at the time of our visit. Lots of normal wear erosion on the older sections. There is 2-feet deep scour channel out of reservoir in area of first dike which is an extension of dam. I suspect underground piping at second little patch. Old fill is very soft and I leave tracks easily.

Vegetation consists of a few sagebrushes on the right side. Sage on the upstream face before new top and after new top. One fourwing saltbush at corner of dam. I found a 6-inches tall, 3-inches diameter mushroom on the downstream face near patch.

Spillway has flowed recently and there are lots of trash (debris) hanging in the sage. The spillway is still very wet.

It is not clear, but this dam (BLMID - 2016) becomes Loca Mujer Diversion dam.
Notes for spreadsheet entry: Condition - U (Patched); inlet, outlet and riprap.

Maestas - Garcia Section 29 Detention Dam

These are my notes which were taken on July 30, 1998. The weather was high overcast and warm. BLMID - 2014, ID No. 20073, built in 1954. The map coverage used was the USGS quadrangle map "Headcut Reservoir." Dimensions from the worksheet are 13.9' x 1162' x 7'.

We started at the left abutment. There is no crest at all for 150-feet. The gradual taper (when it starts) is full of rodent (prairie) holes that are piping water. Then there was a soil change - more gravel, more structure, but rodent holes continue. At 400-feet the rodent holes stop and its like this is the real dam. However, the crest is no longer straight and slightly uneven. Between 400-feet and 500-feet layered-fill shows up (tan on the top and brown colored underneath). The downstream face is clean; the upstream face has sage after 500'. Between 500 to 555 feet there is a new tan top and the rodent holes have stopped. At 595-feet there are more rodent holes in lower brown colored fill material. At 627-feet and at 640-feet I found more rodents (downstream within 2-feet of crest). Between 645 and 700-feet the tan top is wider and it looks new. Between 700 and 785-feet there is a slump on the upstream face which ends at large rodent hole three-feet (vertical) down. This slump is more obvious because it is tan in color. Again, it could be new fill. At 835-feet I found more rodents in the brown fill. At 990-feet is the conduit crossing.

The inlet trash rack is OK, but rusty. The concrete box has eroded sides and has lost as much as 6 inches in places. Concrete on the outlet head wall is deteriorating.

We found the 1983 marker and pipe for 1954 marker. Spillway has sage (mostly dead) but poorly defined. Water lines comes through the spillway on the right side. Slight scouring out of spillway floor has exposed the sandstone on the right side.

Noted for spreadsheet entry: Condition - P (new top?); Inlet, outlet and rodents.

Maestas - Garcia Section 5 Diversion

These are my notes which were taken on July 30, 1998. The weather was warm and overcast. BLMID - 2017, Maestas-Garcia Section 5 Diversion Dam, ID No. 20070, built in 1954. The map coverage used was the USGS quadrangle map "Headcut Reservoir." Dimensions from the worksheet are 9.4' x 1701' x 8'.

While I inspected Maestas - Garcia Section 5 Detention Dam, ID No. 20069, Mr. Chavez drove over and looked at this dam. Even from a distance I could note that it has sagebrush. Mr. Chavez's assessment was that it was not breached, has no outlet works other than the spillway, and is in similar shape to the Maestas - Garcia Section 5 Detention Dam.

Notes for spreadsheet entry: Condition G; sagebrush.

Maestas - Johnson Detention Dam

These are my notes which were taken on July 15, 1998. The weather was warm and clear. BLMID - 1389, Maestas-Johnson Detention Dam, ID No. 20074, built in 1950. The map coverage used was the USGS quadrangle map "San Pablo." Dimensions from the worksheet are 19' x 376' x 7'.

Starting at right abutment. Soil is loamy-clayey (alligator weathering). We found the two markers in good shape. The spillway has a county road (Piedra Lumbre County Road 102) running though it (It is a gravel road). This road may have lowered the invert of the spillway by one to two-feet. Wingwall needs cleaning and reshaping.

The fill is very soft on the downstream slope but very little rivulets. There is an erosional wash off of the downstream toe about 5-10-feet which is about 1-foot deep. On the left abutment the water from a butte behind the dam is running into the dam and cutting the upstream face. We need to bring in a little fill and divert the water upstream and put in some water bars. Wave action scar is 18 to 21-inches. The toe of upstream slope is essentially against outlet pipe. This is because there is a slump-block on the upstream face.

There is no trash rack. Outlet pipe is leaning (eight inches from vertical), and is three-feet tall. The pipe has big square holes two by two-inches with two on each side. There is no protective coating left and there is beginning to be a little rust at the bottom. Outlet is open, but the silt downstream is higher than outlet forming an inverted siphon?

Although there is quite a lot of sage, the dam is really clean compared to others. Good grass on the upstream face. Rodents on the upstream face.

Notes for spreadsheet entry: Condition - F; slump and rodents.

Marys Dam and Diversion

These are my notes which were taken on July 24, 1998. The weather was warm, but overcast. BLMID - 0385, Marys Dam and Diversion, ID No. 20134, built in 1954. The map coverage used was the USGS quadrangle map "Tinian." Dimensions from the worksheet are 17' x 363' x 6'.

We started at right abutment. We found the 1984 marker OK on the other side of spillway. The crest is well rounded and as much as 2-feet low in places. The dam is made with loamy, clayey soils. Old wave action erosion on the upstream face. Upstream and downstream faces clean. There is a 10 to 12-feet deep headcut to outlet of spillway. Lots of water seems to be going over spillway. Spillway eroding in from natural cut on the far side. Could not find inlets or outlets. By dowsing, Mr. Chavez found two pipes, although there is no physical evidence. Notes for spreadsheet entry: Condition - P; Spillway, 2 - inlets, 2 - outlets, and riprap.

Minute Dam

These are my notes which were taken on July 17, 1998. The weather was warm and clear. BLMID - 0206, Minute Dam, ID No. 20104, built in 1954. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 16' x 575' x 8'.

We started at the left abutment. We found both markers (1984, 1954) OK. The dam is made with loamy clayey soil. Shale material in bottom of fill (float on the downstream face). The crest shape is gone; fully rounded. The dam is eroding worse on the upstream face. There is a three foot scar from wave action erosion. The downstream face is weathering worse on the right abutment.

Very clean on both faces for 1/3 to ½ of dam. Rabbitbrush starts 50-feet left of outlet structure inlet. Cattle trail up each grain on the upstream face. I found wine bottles and cans.

The trash rack is as shown in 1984 picture and open. The concrete box is open. Pipe is open (8-inches). There is an internal drop structure. The outlet is open but there is about four-feet of sediment above the pipe. It has its own stilling basin.

Sage in spillway - rock bottom. Slight redefining is needed.
Notes for spreadsheet entry: Condition - P; outlet, riprap and rabbitbrush.

Montoya Detention Dam

These are my notes which were taken on August 8, 1998. The weather was warm and clear. BLMID - 2376, Montoya Detention Dam, ID No. 20034, built in 1957. The map coverage used was the USGS quadrangle map "Cerro Parido." Dimensions from the worksheet are 17' x 845' x 8'.

We started at the left abutment. We found the 1983 marker OK. The crest is uneven and crooked with lots of gravel in the fill. The crest is better after the wingwall.

There is Juniper on the crest. Upstream face has snakeweed, fourwing saltbush, Chico, lots of saltcedar, and Cholla. Downstream face snakeweed, fourwing saltbush, and Chico.

I found several badger holes. One in the upstream face but maybe all in the wingwall. Several in the crest, left of conduits (between left and right conduits) and active. And another near the right conduit.

The trash rack is OK. The concrete is OK. The pipe is OK. The outlet is OK (has a natural spilling basin) and working. A cattle trail is breaching the joint between the right abutment and wing wall which is shortcutting the spillway. Spillway has fourwing saltbush, juniper, and Cholla. There is erosion into spillway, but very little cutting out of spillway. saltcedar in outlet channel. Reshape left wing wall (300' x 6').
Notes for spreadsheet entry: Condition - F; Spillway, badgers and saltcedar.

Montoya Section 15 Diversion Dam

These are my notes which were taken on August 5, 1998. The weather was warm and clear. BLMID - ????, Montoya Section 15 Diversion Dam, ID No. ????. The map coverage used was the USGS quadrangle map "Cerro Parido."

There is a dike that is 340 feet long and about 10-feet tall (highest point) that diverts drainage from the right into the E. Montoya Section 15 Detention Dam. This dam needs to be resurfaced and maintained.
Notes for spreadsheet entry: Condition - F.

Montoya Section 22 Detention Dam

These are my notes which were taken on August 5, 1998. The weather was warm and clear. BLMID - 2021, Montoya Section 22 Detention Dam, ID No. 20029, built in 1954. The map coverage used was the USGS quadrangle map "Guadalupe." Dimensions from the worksheet are 14.3' x 810' x 10'.

We started at the right abutment. We found the 1954 and 1983 markers OK. The dam is made with loamy, clayey fill. Upstream fourwing saltbush, sagebrush, snakeweed and Cholla. Prairie dog city in downstream wing wall. Prairie dog city on the upstream face right abutment. Cow trail rounded the crest. Downstream fourwing saltbush, sagebrush and saltcedar around burrow area downstream.

The trash rack is OK, but has surface rust. There is a Pack rat's nest on the side of trash rack. The concrete box of pipe is open and clear. Water needs to erode down to box (1-1/2-feet down). Wave action scouring. Outlet pipe has sloughed over.

Rodent holes (mice) above conduit upstream. Badger hole on the downstream face. Two cattle trails left abutment have caused erosion through the crest left of conduit.
Notes for spreadsheet entry: Condition - P; Inlet, outlet, riprap, saltcedar and fourwing saltbush.

Moss Rock Tank

These are my notes which were taken on July 16, 1998. The weather was warm and clear. BLMID - 1105, Moss Rock Tank, ID No. 20098, built in 1956. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 14' x 655' x 10'.

We started at the at the left abutment. The 1984 marker is in good shape. The dam is made with loamy silty fill. Rock in fill (Sandstone). Some form remaining of crest, but erosion on both sides. On the right side the crest is rounded and has more erosion downstream. Close to right abutment there is a bench that has formed on the downstream slope. This is right below lots of rivulets, one which is 1-foot deep. Cattle trail has not eroded crest more than other places. Road across top. Domestic trash on the upstream face and in reservoir.

There is primarily sagebrush on the downstream face, with snakeweed and Chico. There is fourwing saltbush all over the upstream slope.

The trash rack is in place but rusty, support Rebar braces rusting, clean CMP (26-inches from sediment). Outlet pipe is open but needs cleaning.

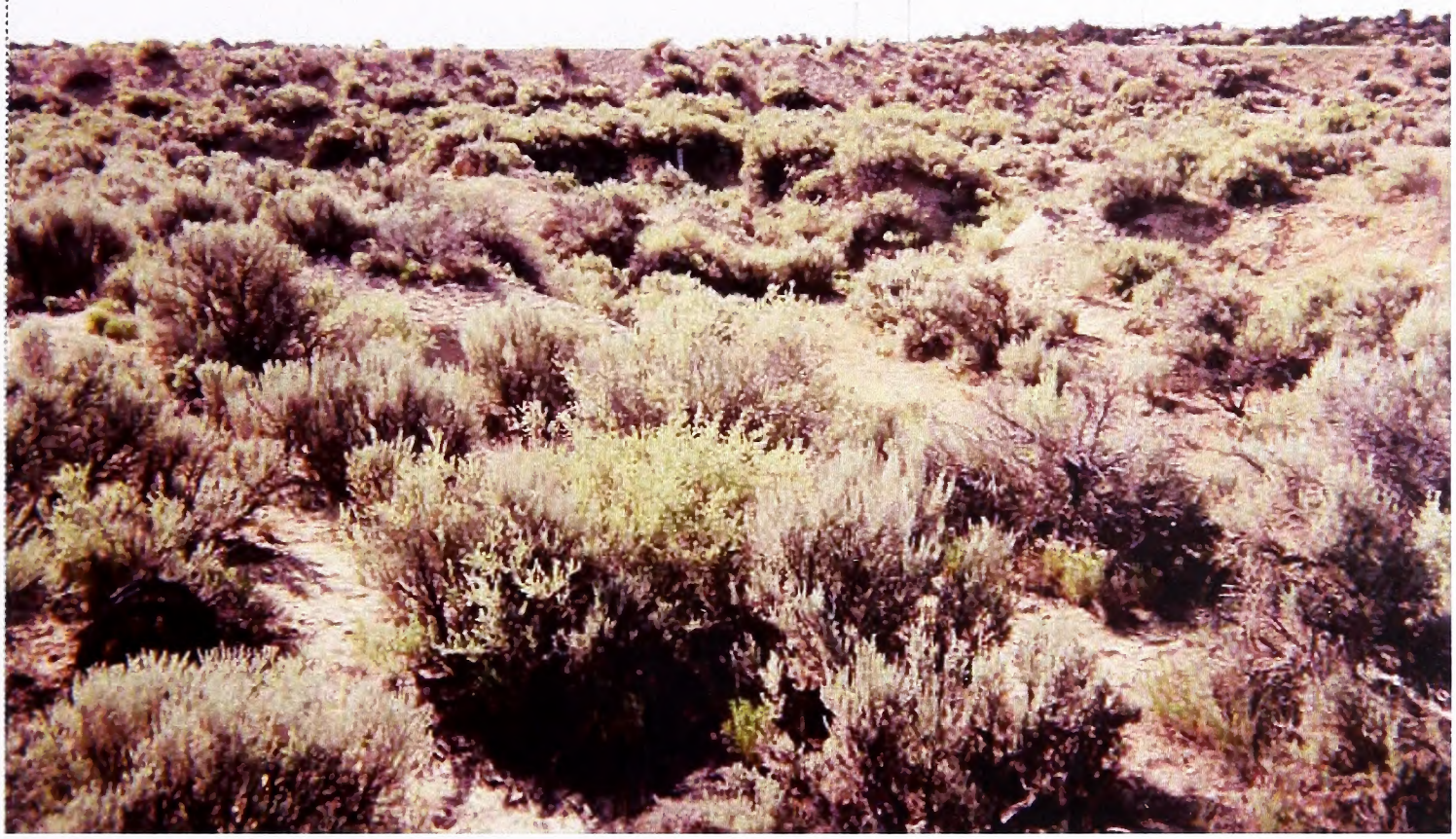
There is rodent activity on the upstream and downstream face right of the outlet pipe.

A headcut has reached the toe of the dam immediately left of the outlet! It has branched off and has reached the toe 200-feet right of outlet. We need headcut stabilization to save this dam. The headcut itself has the appearance of being stable because of fourwing saltbush in cuts. We very definitely need a wing wall perpendicular to right abutment to direct water downstream rather down groin and into headwall! (Length is about 120-feet ±. Actually we need a wingwall on the left side also!

Spillway fairly clean but needs reshaped and control of headcut before it breaches into the reservoir. Domestic trash on the right abutment.

Notes for spreadsheet entry: Condition - F: Two drop structures for headcuts, spillway, rabbitbrush and sagebrush, cleaning.

BLMID - 1105, Moss Rock Tank, ID No. 20098
Picture 1, from downstream looking upstream at headcut encroachment.
Note upper headwall, exposed outlet pipe, and dam erosion, 7/16/98.



BLMID - 1105, Moss Rock Tank, ID No. 20098
Picture 2, broader perspective also showing bifurcated headcut to the left, 7/16/98.

Mule Dam

These are my notes which were taken on August 13, 1998. The weather was warm and clear. BLMID - 1322, Mule Dam, ID No. 00049, built in 1963. The map coverage used was the USGS quadrangle map "Mule Dam." Dimensions from the worksheet are 28' x 2221' x 7'.

We started at the right abutment. We found the 1984 marker bent; the old marker cap gone. This dam is made with white fill. The crest is gone; the dam looks like it has been overtopped. One-half to three-fourths of the right side has been overtopped, but the fill is still hard as a rock. There are two breaches - actually the rightmost breach is a cavity (La Ventana). I found some evidence of over-topping along the left side.

The downstream face has sage; Upstream face has sage and rabbitbrush. The outlet pipe crossing is 275 feet from the left abutment.

Notes for spreadsheet entry: Condition - U (Breached).

BLMID - 1322, Mule Dam, ID No. 00049
Picture 1, looking across crest from right side;
from this point the farthermost breach is visible, 8/13/98.

BLMID - 1322, Mule Dam, ID No. 00049
Picture 2, first point where two breaches are visible, 8/13/98.

BLMID - 1322, Mule Dam, ID No. 00049
Picture 3, looking at downstream face and cavity (perspective view), 8/13/98.

BLMID - 1322, Mule Dam, ID No. 00049
Picture 4, looking at downstream face and cavity (closer view), 8/13/98.

BLMID - 1322, Mule Dam, ID No. 00049
Picture 5, looking at downstream face, breach and benches within the breach, 8/13/98.

BLMID - 1322, Mule Dam, ID No. 00049
Picture 6, looking upstream through breach from floor, 8/13/98.

BLMID - 1322, Mule Dam, ID No. 00049
Picture 7, looking upstream through breach from floor, 8/13/98.

BLMID - 1322, Mule Dam, ID No. 00049
Picture 8, looking across the downstream face at original outlet channel, 8/13/98.

BLMID - 1322, Mule Dam, ID No. 00049
Picture 9, looking down the downstream face, two headwalls, and a piece of the inlet pipe, 8/13/98.

BLMID - 1322, Mule Dam, ID No. 00049
Picture 10, looking at the upstream face and breach from the sediment above the headcut, 8/13/98.

BLMID - 1322, Mule Dam, ID No. 00049
Picture 11, looking along the upstream face (left to right) at the headcut in the sediment, 8/13/98.

BLMID - 1322, Mule Dam, ID No. 00049
Picture 12, looking at the upstream face and through the cavity, 8/13/98.

Oil Well Dam

These are my notes which were taken on August 13, 1998. The weather was warm and clear. BLMID - 0283, ID No. 20151, built in 1955. The map coverage used was the USGS quadrangle map "Fire Rock Well." Dimensions from the worksheet are 19' x 522' x 9'.

We started at the left abutment. We found the 1984 marker (5/6/84) OK. Erosion has cut two-feet (vertical) out of the spillway. It needs fixing and the spillway needs reshaping.

The dam is made with loamy, clayey fill. However, there seems to be lots of sandy soils around and covering portions of the dam. The crest is rounded. The dam has a badly weathered downstream slope. There are erosional cuts along reservoir. While we were there a herd of sheep come to water. Downstream slope has sagebrush and snakeweed. Upstream slope has sagebrush and snakeweed.

The trash rack is in place. The stand-pipe is open. The sediment in the reservoir has built up to the bottom of perforations. Any sediment entering the reservoir is being passed on through the dam. The bottom two-feet has been wrapped with tire tubing to hold water. There are Chinese elm trees at the discharge location. The outlet is buried. There is a slight berm before the Chinese elm.

Right abutment spillway is much more pronounced. It has a wingwall, but the spillway has silted into a "V" shape.

Left abutment has worn down. Needs a patch to divert surface water back into reservoir.
Notes for spreadsheet entry: Condition - P; Spillway, inlet, outlet and embankment.

Old Pond Dam

These are my notes which were taken on July 18, 1998. The weather was warm and clear. BLMID - 0392, Old Pond Dam, ID No. 20106, built in 1954. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 17' x 640' x 9'.

We started at the at right abutment. We found both markers (1954, 1984) OK (the markers are on natural ground across the spillway). There is sagebrush in the spillway, which needs cleaning and reshaped. The dam is made with loamy, clayey fill. The crest has lost its shape and is well rounded, however we could still drive over the crest. Wave action upstream has eroded upstream face to within six-feet of the crest. Lots of seepage downstream from the several feet of water in the reservoir. Dam is very clean on the left abutment. There's a little scouring from natural drainage into pond down groin. Vegetation is mainly sagebrush and snakeweed.
Notes for spreadsheet entry: Condition - P; spillway and riprap.

OOPS

These are my notes which were taken on July 25, 1998. The weather was warm and overcast.

There is a breached dam across Vienete Arroyo that was probably built in the 30-40's area. It is certainly large enough to meet the large dam standards. It has hand laid sandstone rocks across the upstream face. I think that we ought to consider this dam. I called it "OOPS 40" because it was a very substantial dam that appears to be forgotten. The map coverage used was the USGS quadrangle map "Tinian."
Notes for spreadsheet entry: Condition - U (breached).

BLMID - 0000, OOPS 40, ID No. 0000
Picture 1, picture from downstream from right abutment showing breach, 7/25/98.

BLMID - 0000, OOPS 40, ID No. 0000
Picture 2, picture from above left abutment showing opening to spillway, rock facing and the size of embankment, 7/25/98.

Padilla Detention Dam

These are my notes which were taken on August 14, 1998. The weather was warm and clear. BLMID - 2180, Padilla Detention Dam, ID No. 20072, built in 1955. The map coverage used was the USGS quadrangle map "Headcut Reservoir." Dimensions from the worksheet are 17.3' x 670' x 8.

We started at the at the left abutment. We found both markers. Upstream face has fourwing saltbush, Chico and Cholla. Downstream face has fourwing saltbush, Chico and Cholla. By dowsing, this dam has two outlets. It has an internal drop structure. We found the outlet of one pipe downstream which was 3/4 open (it had been cleared recently). The inlets could not be found, they were covered with water.

Notes for spreadsheet entry: Condition - P; Inlets, outlet, and fourwing saltbush.

Padilla Rock Diversion Dam

These are my notes which were taken on July 15, 1998. The weather was warm and clear. BLMID - 2473, Padilla Rock Diversion Dam, ID No. 20075, built in 1957. The map coverage used was the USGS quadrangle map "San Pablo." Dimensions from the worksheet are 8' x 335' x 5'.

We started at the right abutment. The marker is OK. The dam is made with loamy clay fill material, but there is some rock in the fill. The crest has lots and its shape - it is rounded and, now, no longer level. It has probably lost 6 to 12-inches. Cow trail across the deepest erosion point. Downstream face is clean of bush except for 1 or 2 sagebrush. There are four to five sagebrushes on the crest. The upstream slope has several rabbitbrush and lots of grass - some sage in the groins. Reservoir water is starting to make an erosional wave-action scar 18 to 24-inches. Second marker was found about 90% toward the other end. Spillway clear - except for dead juniper. The end of the dam fill is eroding because a cattle trail that has accelerated the erosion. Wing wall of dam spillway has lots of sage, it needs to be cleaned and reformed.

This dam has a settling pond made where the fill was excavated (barrow pit) and gets water from spillway. The water from the spillway is flowing over grassy level ground with out any headcutting. I did not see any signs of rodents.

Notes for spreadsheet entry: Condition F; rabbitbrush and sagebrush, riprap, spillway (wingwall).

Pestle Retention Dam

These are my notes which were taken on August 14, 1998. The weather was warm and clear. BLMID - 1292, Pestle Retention Dam, ID No. 20033, built in 1964. The map coverage used was the USGS quadrangle map "Canada Calladita." Dimensions from the worksheet are 19.4' x 850' x 5'.

On October 14, 1983, Mr. Vasquez documented a breach in the dam. It remains breached; 75' x 20'. We found the both markers. Middle section of dam is softer.

The headcut makes a right turn as it penetrates the embankment.

Notes for spreadsheet entry: Condition - U.

BLMID - 1292, Pestle Detention Dam, ID No. 20033
Picture 1, looking at downstream face and through the breach (close perspective), 8/14/98.

BLMID - 1292, Pestle Detention Dam, ID No. 20033
Picture 2, looking at downstream face, breach and headcut (broader perspective), 8/14/98.

BLMID - 1292, Pestle Detention Dam, ID No. 20033
Picture 3, looking at upstream face and through the breach, 8/14/98.

Piedra Lumbre Detention Dam # 1

These are my notes which were taken on July 29, 1998. The weather was warm and clear. BLMID - 2521, ID No. 00077, built in 1965. The map coverage used was the USGS quadrangle map "Headcut Reservoir." Dimensions from the worksheet are 18.7' x 898' x 7'.

We found the 1965 marker: 1-628 P.L. Det. Dam #1 (1965). We started from right side. This dam is made with very soft loamy soil. The crest is rounded and the sides have lots of natural erosion. Lots of outwash all along downstream toe. Right at the pipe, a cow trail has accelerated erosion to take of 18 to 24-inches from weathered crest. It is holding water.

Lots of sage upstream, some sage downstream. One rabbitbrush on the upstream face.

The trash rack is clear. The CMP pipe is clean, but the supports are rusting. Can hear wave action slurping water into outlet riser.

Some brush in spillway - some erosion from far side. It is flat and defined.

Notes for spreadsheet entry: Condition - G; rabbitbrush.

Piedra Lumbre Detention Dam # 3

These are my notes which were taken on August 1, 1998. The weather was overcast. BLMID - 2624, Piedra Lumbre Detention Dam #3, ID No. 20060, built in 1959. The map coverage used was the USGS quadrangle map "Arroyo Empedrado." Dimensions from the worksheet are 10.4' x 880' x 5'.

We started at the left side. We found the 1983 marker bent to ground. The dam is made with loamy-Clayey (allegator cracks). The crest is rounded, slightly uneven and no longer straight. Here are two cattle trails, one which has cut into the crest by one foot. I found lots of rodents and sink holes in the crest on the right side, around the corner.

Downstream face is clear, except 2 Chico downstream at the outlet. The upstream face has Chico and sagebrush.

We found one inlet box still plugged. I suspect the dam has two outlet pipes, the one being deeper than the other. This is from evidence of outlet channels downstream. The second outlet is to the right of the existing inlet box, closer to the corner, found by dowsing. Both outlet locations have sloughing from three sides which has buried the discharge pipe.

On the right side, around the corner, away from the road, someone has gouged out a pond in the sediment. After the berm that is perpendicular to the crest that forms one side of the new pond, the sediment from dredging the pond is piled against the crest. I think that this dam has been breached and patched where there has been dumping of the sediment on the crest.

The wing-wall that forms the spillway on the right abutment has evidence of old overtopping and breaching. This has caused the erosion along the downstream toe as described by W.K. Beck in 1983. He doesn't mention it, but there has been a new berm built perpendicular to the crest at the place the crest curves to the right. I am confident that this berm was built at the same time the of the patch as is a poor attempt to stop the erosion from the breached wing-wall.
Note for spreadsheet entry: U (patched); inlet, outlet and rodents.

Piedra Lumbre Detention Dam # 6

These are my notes which were taken on July 30, 1998. The weather was high overcast and warm. BLMID - 2691, Piedra Lumbre Detention Dam #6, ID No. 00078, built in 1960. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 13' x 687' x 8'.

We started at the left abutment. The spillway is narrow and in rock. It is quite clear and has a clean entrance. Nearby, I came across a dead, stinking coyote.

The dam is made with loamy fill with fine gravel. It seems to have layered fill, with the lower level eroding faster. The broad crest is well rounded. The upstream face has a 6 to 8-feet wave escarpment. Rodent holes downstream (mice and prairie dogs). Sage and fourwing saltbush, rabbitbrush and Chico.

There is two to three feet of sediment over pipe. The pipe discharges into a naturally formed stilling basin in the channel that requires silt removal or the pipe extended. The trash rack is rusty. The concrete funnel is OK, but the pipe is plugged with sticks and dirt (inside the pipe the plug has grass growing on it.

We found the 1989 marker bent over. I found the dike (wingwall) breached.
Notes for spreadsheet entry: Condition - P; Dike, inlet, outlet, riprap, and rabbitbrush.

Piedra Lumbre Detention Dam # 7

BLMID - 2523, Piedra Lumbre Detention Dam #7, ID No. 00074, built in 1965. The map coverage used was the USGS quadrangle map "Headcut Reservoir." Dimensions from the worksheet are 26.5' x 1028' x 7'.

Located on private land, and we did not gain access. The Condition Survey of November 17, 1983, reported the dam in good shape. Pictures show the presence of saltcedar.
Notes for spreadsheet entry: saltcedar.

Piedra Lumbre Detention Dam #10

These are my notes which were taken on July 30, 1998. The weather was overcast and warm. BLMID - 2524, Piedra Lumbre Detention Dam #10, ID No. 00079, built in 1964. The map coverage used was the USGS quadrangle map "Headcut Reservoir." Dimensions from the worksheet are 19' x 880' x 8.

We started at the left abutment. The dam is made with loamy fill. Large bulge of lighter fill at left. Perhaps this bulge is fill that was added later. Upstream there is a wave action erosional scar 3-feet wide (deep).

The downstream face is clean. There are Sage, fourwing saltbushes on the upstream face; one large saltcedar. Sage dying all along a newer high water line and the Sage is dying around the saltcedar at upstream toe. Downstream toe, opposite of saltcedar, is fresh rodent (prairie) hole and 5-6 others that are seeping and causing a fluvial fan 10 feet across. To the right 20 feet is another 20 foot wide bulge without holes or seepage. At 20 feet more is fourwing saltbush on the downstream slope.

The inlet pipe is below the surface of the sediment. There is cutting in the sediment to get to the exit. The pipe itself has a 55 gallon drum turned over the inlet which is anchored into the sediment with fence posts (metal) and wire. Roughly, the sediment level is level with the top of this pipe. There is a large saltcedar at the outlet. The pipe outlet is open. It opens into an old pond and has to create its own stilling basin to exit.

Near the right side erosion has cut ½ way through the crest in the curve. The old berm of old material may have overtopped. There is lots of outwash in this area. All of a sudden the crest is wider and looks like different material. We found the 1965 and 1983 markers OK. The wingwall is hardly defined (essentially gone). The spillway is eroding in from both sides. There is hard scouring at the spillway outlet (4 foot deep).
Notes for spreadsheet entry: Condition - U (Patched); Spillway, inlet, outlet, riprap, and saltcedar

Piedra Lumbre Reservoir #14

These are my notes which were taken on August 1, 1998. The weather was warm and clear. BLMID - 2618, Piedra Lumbre Reservoir #14, ID No. 20063, built in 1959. The map coverage used was the USGS quadrangle map "Arroyo Empedrado." Dimensions from the worksheet are 12.3' x 354' x 6'.

We started at the right abutment. A cattle trail has breached crest by 3-feet, the crest is trying to hold its shape. There is a hard wave action erosion scar (3 to 4-feet). Another cattle trail is causing erosion on the left downstream groin.

Clean downstream face. Rabbitbrush and fourwing saltbush upstream. There is a dead saltcedar near the inlet on the upstream face. There is a live saltcedar at the logical location of the outlet pipe. I found "Chico" (Manzanita?) on both faces. I found a rodent hole (prairie) two feet down (vertical) the upstream face.

The inlet riser pipe is plugged full of silt. The riser pipe is rusty below the sediment line, and there is no trash rack. The outlet works was not found and assumed plugged and buried.

Found 1957 and 1983 markers OK. The 1959 marker shows, "Felix Lumbre Detention Dam, C-188F."

There is scouring erosion in the spillway which is breaching this dam. I took one picture looking upstream showing the erosion in relation to the reservoir. Erosion is occurring into the spillway from the natural embankment. The spillway needs redefined and a drop structure added to stop the breaching. The spillway looks like the 1983 picture of the spillway of BLMID 0992. Note for spreadsheet entry: U (spillway breach); spillway, saltcedar and rabbitbrush, wave action, inlet and outlet and rodents.

BLMID - 2618, Piedra Lumbre Reservoir # 14, ID No. 20063
Picture 1, looking upstream at entrance to spillway.
Erosion activity is breaching the spillway, 8/1/98.

Pinon Canyon Dam #2

These are my notes which were taken on July 24, 1998. The weather was warm, but overcast and cloudy. BLMID - 0328, Pinion Canyon Dam #2, ID No. 20138, built in 1953. The map coverage used was the USGS quadrangle map "Tinian" Dimensions from the worksheet are 14' x 427' x 18'.

We started at the right abutment. We found the marker bent over and top almost detached. The dam is made with loamy, clayey soil. This dam is much taller on the left abutment near spillway. The fill downstream seems very soft. This dam is quite full of sediment. It is very clean upstream and has a small wave-action scar. The downstream face is covered with trash and tumble weeds. Some rodent burrowing near left abutment

The spillway is located on sandstone, but it is eroding along the bottom.

By dowsing, Mr. Chavez found a pipe, although there is no physical evidence.

While we were at this dam a red pickup stopped and we learned that it does not hold water anymore. The wide crest has been made wider by driving on the shoulders. The people in the pick-up shared that when it rains people slide off of dam, i.e., the condition of the road on the top of the dam is causing accidents.

Notes for spreadsheet entry: Condition - P; Safety, inlet, outlet, riprap and rodents.

BLMID - 0328, Pinon Canyon Dam #2, ID No. 20138
Picture 1, looking from right side, road is wider than crest, 7/24/98.

BLMID - 0328, Pinon Canyon Dam #2, ID No. 20138
Picture 2, looking from left side where road crosses through spillway.
Note how left side of dam is higher than middle or right side, 7/24/98.

Pinon Canyon Dam #3

BLMID - 0335, Pinon Canyon Dam #3, ID No. 20133, built in 1953. The map coverage used was the USGS quadrangle map "Tinian." Dimensions from the worksheet are 17' x 586' x 6'. We did not visit this dam. The Condition Survey of June 17, 1984, reported inlet and outlet problems.
Notes for spreadsheet entry: inlet and outlet.

Pinon Canyon Dam #4

These are my notes which were taken on July 30, 1998. The weather was warm and overcast. BLMID - 0340, Pinon Canon Dam #4, ID No. 00043, built in 1953. The map coverage used was the USGS quadrangle map "Tinian." Dimensions from the worksheet are 16' x 676' x 9'.

We started at the right abutment. We found the 1984 marker in good shape. The dam is holding water to within three-feet of the crest. The crest is no longer level, but the fill is hard! The entire right side has over-topped and washed out the wing wall. Several cattle trails have caused heavy erosion on the downstream face. The dam fairly clean with some Juniper and fourwing saltbush. I found one small sink hole in crest.
Notes for spreadsheet entry: Condition - U (overtopped); fourwing saltbush.

BLMID - 0340, Pinon Canyon Dam #4, ID No. 00043
Picture 1, looking upstream at headcut in spillway, 7/30/98.

BLMID - 0340, Pinon Canyon Dam #4, ID No. 00043
Picture 2, looking at downstream face and overtopping scars, 7/30/98.

BLMID - 0340, Pinon Canyon Dam #4, ID No. 00043
Picture 3, looking upstream across spillway and scars, 7/30/98.

BLMID - 0340, Pinon Canyon Dam #4, ID No. 00043
Picture 4, Looking across crest from right to left from ridge above spillway, 7/30/98.

BLMID - 0340, Pinon Canyon Dam #4, ID No. 00043
Picture 5, Erosional channel parallel to spillway down groin, 7/30/98.

BLMID - 0340, Pinon Canyon Dam #4, ID No. 00043
Picture 6, looking across crest from left abutment, 7/30/98.

BLMID - 0340, Pinon Canyon Dam #4, ID No. 00043
Picture 7, looking across crest from left abutment, 7/30/98.

Pinon Canyon Dam #6

These are my notes which were taken on July 24, 1998. The weather was warm, but overcast and cloudy. BLMID - 0365, Pinon Canyon Dam #6, ID No. 20135, built in 1953. The map coverage used was the USGS quadrangle map "Tinian." Dimensions from the worksheet are 12' x 6778' x 9'.

We started at the left abutment. We found the 1984 marker with rifle holes in the pipe. The reservoir is full of bushes and grass.

The dam is made with loamy, clayey soil. There are deep erosion rivulets upstream. General extensive erosion all over. There is evidence of slight over-topping of the dam in its bend. There is erosion from wave-action upstream.

There is a large, deep headcut along upstream face of dam. This headcut has cut through the road talked about in 1984. It is now at the toe of the dam and into the lower spillway. I took several pictures of the massive piping and resulting seep cavities.

Notes for spreadsheet entry: Condition - U; Spillway, inlet, outlet and riprap.

BLMID - 0365, Pinon Canyon Dam #6, ID No. 20135
Picture 1, Picture of trash rack and piping at inlet, 7/24/98.

BLMID - 0365, Pinon Canyon Dam #6, ID No. 20135
Picture 2, Picture of amount of silt accumulated over inlet before failure, 7/24/98.

BLMID - 0365, Pinon Canyon Dam #6, ID No. 20135
Picture 3, looking downstream at outlet pipe that was underneath the road cut in toe, no question of seeping, 7/24/98.

BLMID - 0365, Pinon Canyon Dam #6, ID No. 20135
Picture 4, Outlet pipe at top bend and joint, 7/24/98.

BLMID - 0365, Pinon Canyon Dam #6, ID No. 20135
Picture 5, Shot down the downstream face at second washout, 7/24/98.

BLMID - 0365, Pinon Canyon Dam #6, ID No. 20135
Picture 6, Overall shot looking downstream into headcut, 7/24/98.

Pinto Dam

These are my notes which were taken on July 24, 1998. The weather was warm, but overcast and cloudy. BLMID - 1366, Pinto Dam, ID No. 20140, built in 1956. The map coverage used was the USGS quadrangle map "Tinian." Dimensions from the worksheet are 19' x 648' x 10'.

On the right abutment I found the 1956 and 1984 markers in good shape. The road crosses the right abutment between fill and markers. There is lots of rock float in fill. The crest has a swale in the top over the outlet pipe. The upstream face seems steeper. A cattle trail crossway the crest at the right corner.

Vegetation on the dam consists of lots of rabbitbrush on the downstream face around outlet pipe, some Manzanita (Chico), and lots of snakeweed.

The trash rack is in place, but rusting. The support braces are in place and rusting. The CMP pipe is clean outside but has no protective coating. Siltation up to the perforations so this dam is passing any new sediment. Outlet pipe covered and so plugged that we did not find.

There is minor brush in spillway, which has a sandstone floor. Other than for a cattle trail, the spillway does not appear to be used.

Notes for spreadsheet entry: Condition - P; Outlet and rabbitbrush.

Pipeline Bend Dam

These are my notes which were taken on July 17, 1998. The weather was warm and clear. BLMID - 0402, Pipeline Bend Dam, ID No. 00045, built in 1954. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 20' x 446' x 7'.

We started at the left abutment. We found both the markers OK (1984 and 1954). The dam is made with very soft, loamy, clayey fill. Cattle (after 24 hours of showers) are making 1-foot indentations in soil. The crest is no longer level; none of the original shape is remaining. County Road is along the toe of the dam on the left side (pipeline road). Lots of rabbitbrush, especially upstream. Between the assumed downstream toe and the road the rabbitbrush is too thick to walk through. The road has obliterated any sign of the outlet works.

Upstream the sage has been burned and the rabbitbrush is very thick. There is a distinct wave action erosion from about 12 to 18-inches. Minor rodent hole on the upstream face above scar. Toward the right side the fill becomes more shaley.

There are large scours in spillway. It has been lowered and a headcut is reaching into the sediment. Some brush. It needs cleaning and redefined. On the lower end of the spillway is an intact shale ledge that is being eaten away from downstream.

Notes for spreadsheet entry: Condition - P; safety, spillway and outlet.

BLMID - 0402, Pipeline Bend Dam, ID No. 00045
Picture 1, standing in spillway looking downstream at where spillway discharges across the pipeline road, 7/17/98.

BLMID - 0402, Pipeline Bend Dam, ID No. 00045
Picture 2, standing in spillway looking downstream at where spillway discharges across the pipeline road, 7/17/98.

Polka Dot Drop Structure

These are my notes which were taken on August 3, 1998. The weather was warm and clear. BLMID - 2408, Polka Dot Drop Structure, ID No. 20008, built in 1959. The map coverage used was the USGS quadrangle map "Ojito Spring." Dimensions from the worksheet are 18' x 346' x 10'.

We started at the left abutment found 1983 marker OK. The dam is made with loamy, clayey fill which is more tan colored than the native soil. There are seep hole along the crest which drains water from the crest both upstream and downstream. There is also the outlet of a seep hole eight feet upstream of the outlet's stilling basin.

Vegetation consists of fourwing saltbush upstream and downstream and two large saltcedars on the upstream face.

The outlet of the conduit is open. It has a natural stilling basin in four feet of sediment. We need to extend the outlet pipe about 32 to 64 feet. The dam has a second pipe found by dowsing.

The spillway has fourwing saltbush and Cholla growing in its path. It is not well defined and should be cleaned and redefined.

Notes for spreadsheet entry: Condition - P; Spillway, inlet, outlet and saltcedar.

R. Gurule Detention Dam Section 15

These are my notes which were taken on August 9, 1998. The weather was warm and clear. BLMID - 5700, R. Gurule Detention Dam Section 15, ID No. 20059, built in 1953. The map coverage used was the USGS quadrangle map "Arroyo Empedrado." Dimensions from the worksheet are 9.9' x 480' x 3'.

We started at the right abutment. We found the 1983 marker OK. The dam is very crooked and uneven, it may have been over-topped. The dam was probably breached in right abutment at corner at the spillway. The original spillway was washed-out. Somebody has made a patch in the crest which is blocking the old spillway and then cut a new spillway. Sediment has been pushed over the dam at left abutment. The reservoir was full to the spillway which is within 3 feet of crest.

Upstream - rabbitbrush, saltcedar and Chico. Wave active scar. Downstream face fourwing saltbush. Lots of brush. A cattle trail takes crest down to about 18-inches from the water.

Notes for spreadsheet entry: Condition - U (breached); Spillway, saltcedar and rabbitbrush.

BLMID - 5700, R. Gurule Detention Dam Section 15, ID No. 20059
Picture 1, overview of the crest of the dam from a bluff over the right abutment.
Looking down at new spillway, patched right side and old spillway,
across the crest and the sediment pushed over the left abutment, 8/9/98.

BLMID - 5700, R. Gurule Detention Dam Section 15, ID No. 20059
Picture 2, from right abutment, closer to the crest to show water
level to the new spillway inlet, 8/9/98.

R. Gurule Detention Dam Section 27

These are my notes which were taken on August 9, 1998. The weather was warm and clear. BLMID - 1701, R. Gurule Detention Dam Section 27, ID No. 20058, built in 1953. The map coverage used was the USGS quadrangle map "Arroyo Empedrado." Dimensions from the worksheet are 19.7' x 452' x 9'.

We started at the right abutment. On November 11, 1983, Mr. Beck found that this dam had been overtopped, breached and patched. Since that time more massive earthwork has been accomplished. A newer pond has been constructed in this area of the old reservoir. Reservoir sediment has been pushed over dam and into the spillway. A new "spillway" has formed around the right side of the larger embankment.

The original reservoir is completely filled with sediment (about one foot from the crest). Still looks similar to Mr. Beck's picture. Along the left side the crest seems to be overtopped regularly. This is about as close that I have seen to the concept that a dam could become buried (left side only). There is no headcut threatening where this overtopping is occurring.
Notes for spreadsheet entry: Condition - U (overtopped); spillway

BLMID - 1701, R. Gurule Detention Dam Section 27, ID No. 20058
Picture 1, new pond with dredging pushed over the old dam (some into the old spillway), 8/9/98.

BLMID - 1701, R. Gurule Detention Dam Section 27, ID No. 20058
Picture 2, looking up the spillway where new dredging have blocked the original outlet, 8/9/98.

BLMID - 1701, R. Gurule Detention Dam Section 27, ID No. 20058
Picture 3, from top of new dredging looking down on the older original overtopped dam, 8/9/98.

BLMID - 1701, R. Gurule Detention Dam Section 27, ID No. 20058
Picture 4, erosional scouring of a new spillway around the pond dredging, 8/9/98.

R. Gurule Detention Dam Section 28

These are my notes which were taken on August 9, 1998. The weather was warm and clear. BLMID - 1320, R. Gurule Detention Dam Section 28, ID No. 20067. The map coverage used was the USGS quadrangle map "Arroyo Empedrado." Dimensions from the worksheet are 8.5' x 528' x 5'.

We started at the right abutment. Spillway has filled-in except for the last 30 feet. This dam is made with loamy soil. The crest of the dam is well rounded. The dam has been over-topped on the left side. The last 100 to 150 feet needs to be rebuilt. At 300 feet is another overtopping that can be repaired.

Downstream fourwing saltbush, there is saltcedar in channel, Juniper and Chico. Upstream has saltcedar and rabbitbrush (lots of both).

Notes for spreadsheet entry: Condition - U (overtopped); Spillway, saltcedar.

BLMID - 1320, R. Gurule Detention Dam Sec. 28, ID No. 20067
Picture 1, looking at downstream face, overtopping erosion and patch, 8/9/98.

BLMID - 1320, R. Gurule Detention Dam Sec. 28, ID No. 20067
Picture 2, from the edge of the water in the reservoir looking downstream at crest and sink hole caused by overtopping, 8/9/98.

R. Gurule Reservoir

These are my notes which were taken on August 11, 1998. The weather was warm and clear. BLMID - 2197, ID No. 20082, built in 1955. The map coverage used was the USGS quadrangle map "San Pablo." Dimensions from the worksheet are 12' x 683' x 6'.

We started at the right abutment. We found both of the markers (1953, 1984) OK (Proj. 484 Reye S. Gurule Res.). The spillway needs defining. The crest is uneven, crooked and well rounded. There has been slight overtopping.

The upstream slope has rabbitbrush and sage. I found two seep holes (one-foot and two-foot diameter) on the end. There are lots of one to two foot diameter sink holes in the crest and along the shoulders. A cattle path is cutting up to 18-inches off the crest. We found a badger hole on the downstream face.

We found one pipe. Seven feet to the left of this pipe is a seep hole (7 x 18-inches) on the upstream face four-feet (vertical) down. Opposite side of dam there are two sink holes; one over the pipe at five-feet (vertical) and the other at the downstream toe. We should install a new Inlet and outlet and explore the sink hole. We found two more pipes confirmed by two obvious depressions where the pipes discharge. There is a burned-out auto downstream.
Notes for spreadsheet entry: Condition - P; spillway, inlets, outlets, rabbitbrush and drilling.

R. Maestas Detention Dam

These are my notes which were taken on July 15, 1998. The weather was warm and clear. BLMID - 2451, ID No. 20076, built in 1957. The map coverage used was the USGS quadrangle map "San Pablo." Dimensions from the worksheet are 10' x 290' x 7'.

We started on the left abutment - 2 markers in good shape. Spillway cut in layered sandstone. Sage, pine and juniper are growing in the spillway and it needs to be cleaned.

I found small rocks in the fill which is loamy-clayey (alligator cracks). On the left side there remains the semblance of the original crest. About 100-feet left of the outlet pipe the form of the crest disappears and becomes rounded. The upstream face is weathering much worse. Hard weathering/wave action escarpment on the upstream face about four-feet high. The first of three cattle trails cut across the crest at the first place of total roundness. One of the trails has cut 12 to 18-inches deep across the rounded crest. Downstream face is very clean - there is some snake grass. Sage, rabbitbrush and pine on the upstream face.

The inlet of the discharge pipe was found as it has been cleaned in the past. It is a six-inch CMP which lies horizontal and sediment has formed to top of pipe (no riser on the inlet). It was full of sediment again, but one shovel full of dirt cleared the face of entrance. Perhaps this dam needs a riser pipe. Downstream we could not find the outlet. Mice have covered the opening with tailings. There are rodents at the toe, but I did not see any within the fill material. From the cattle trail to the right abutment there is less sage and rabbitbrush.
Notes for spreadsheet entry: Condition - P; inlet, outlet, rabbitbrush and pine and rodents.

R. Maestas Rock Diversion Dam

These are my notes which were taken on July 15, 1998. The weather was warm and clear. BLMID - 2453, ID No. 20077, built in 1958. The map coverage used was the USGS quadrangle map "San Pablo." Dimensions from the worksheet are 10' x 315' x 9'.

We started at the at right abutment. We found both markers in good shape; the 1984 is at the right abutment and the 1958 marker at the left abutment. The dam was made with loamy, clayey soil, with rocks in the fill. It has a rounded crest. The downstream face is very soft and I sank in about six inches with every step. A two to three feet wave action escarpment (change in slope).

Lots of sage and predominately rabbitbrush upstream. I found one juniper bush. There is a cattle trail two-feet from the marker. There is a fence across the fairly clean spillway (using old trees for ballast (weight)) which needs rebuilding. Rodent holes on the end face of left abutment.
Notes for spreadsheet entry: Condition - F: Riprap and rabbitbrush.

Rattlesnake Tank

These are my notes which were taken on August 14, 1998. The weather was warm and clear. We were not given any information on this dam. We found it looking for another dam in the vicinity. It shows on the USGS quadrangle map "Canada Calladita." We found the 1959 marker, (Proj 398 Rattle Snake Dam NE 1/4 NW 1/4 Sec 17 T 17N R 4 W (1959)). It had a discharge pipe at one time. It has a large homemade patch in the center.
Notes for spreadsheet entry: Condition - U (Patched); inlet and outlet.

Retention Dam #128

These are my notes which were taken on July 28, 1998. The weather was warm and clear. BLMID - 1881, Retention Dam #128, ID No. 20019, built in 1963. The map coverage used was the USGS quadrangle map "Cabezon Peak." Dimensions from the worksheet are 13' x 578' x 8'.

We started at the left abutment. Spillway floor has erosion (ruts) from use. Erosion into the spillway channel from both sides. Wingwall needs to be redefined, it is about 200-feet long.

We found the 1983 marker OK. The dam is made with loamy soil. The crest is not even any more. Natural erosion is now eating at the crest in form of rills (mostly downstream). The downstream slope is soft and fragile - almost vertical where cattle trails have crossed the face at an angle. Cow trail crossing crest. Upstream has a small wave action scar two to four feet.

Saltcedar trees at water edge, a few fourwing saltbushes, and snakeweed around the high waterline. Downstream face is very clean except for a couple of juniper.
Note for spreadsheet entry: F; saltcedar and juniper, retaining wall, and spillway.

Retention Dam USGS #1

These are my notes which were taken on August 14, 1998. The weather was warm and clear. BLMID - 4216, Retention Dam USGS #1, ID No. 20020, built in 1971. The map coverage used was the USGS quadrangle map "Cabezon Peak." Dimensions from the worksheet are 10.2' x 510' x 9'.

We started at the middle of the dam. The area of overtopping drew our attention there first. Obviously, the right side of the dam and the damage described by Mr. Vasquez (10/5/83) has been fixed; actually most of the dam may have a new top.

Vegetation includes saltcedar upstream and downstream.

The spillway has an erosion channel through it.
Notes for spreadsheet entry: Condition - U (overtopped); spillway, outlet and saltcedar.

BLMID - 4216, Retention Dam USGS #1, ID No. 20020
Picture 1, looking at downstream face and overtopping erosion, 8/14/98.

BLMID - 4216, Retention Dam USGS #1, ID No. 20020
Picture 2, looking upstream through spillway and erosion within the spillway, 8/14/98.

Rim Rock Dam

These are my notes which were taken on July 17, 1998. The weather was warm and clear. BLMID - 0408, ID No. 20111, built in 1954. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 14' x 541' x 6.

At the right abutment we found the 1984 marker in good shape. The old marker (1954) was sawed off (gone). The very clean dam is made with a whiter, loamy, clayey soil. There is some sagebrush on the upstream face. The crest shape gone but we can still drive across. Lower level may be different fill - the slope downstream breaks off. Bad erosion upstream through crest. There is a 18 to 24-inch wave action escarpment. Bad erosion upstream from right abutment; stabilization needed. "Rills" - rivulets down downstream face. Some domestic trash (old bucket, etc.).

The outlet of the discharge pipe is open the top two inches. Inlet box with outlet pipe is as shown in BOR picture. There are "sinks" around inlet box. The assumption is that there is piping" around the discharge pipe. On the left side upstream a rodent hole is letting water out. The source is unknown, but it would not appear it was from the sinks around the inlet.

Spillway dumps out into adjacent drainage (left side). The erosion on both sides of spillway is dumping soils on the bottom. Needs cleaning and reshaping.

Notes for spreadsheet entry: Condition - F; spillway, riprap and rodents.

BLMID - 0408, Rim Rock Dam, ID No. 20111
Picture 1, two foot deep channel to sink hole in sediment above inlet, 7/17/98.

BLMID - 0408, Rim Rock Dam, ID No. 20111
Picture 2, sink hole along front-right corner of inlet box.
The tape was to demonstrate the slopes in the sediment, 7/17/98.

Rincon Grande Detention Dam #3

These are my notes which were taken on August 7, 1998. The weather was warm and clear. BLMID - 2489, ID No. 20038, built in 1958. The map coverage used was the USGS quadrangle map "Cerro Parido." Dimensions from the worksheet are 8.2' x 1460' x 7'.

We started at the right abutment. We found the 1983 marker OK. Dam crest is old and very uneven, very crooked. Slightly over-topped on right abutment. Numerous cattle trails are allowing 18-inches of erosion. There is a 2-feet x 200-feet erosion channel in the reservoir. Downstream face has snakeweed and Chico. Saltcedar at outlet. Upstream slope has Chico and saltcedar. I found three "Prairie dog towns," one on the right abutment, one downstream, and one on the crest of the left wing or abutment.

The concrete intake box is OK. The inlet pipe is OK, but rusty. The trash rack continues to lie on top. The outlet pipe is silted in from channel.

Notes for spreadsheet entry: Condition - P; outlet, saltcedar and rodents.

Rincon Grande Detention Dam #4

These are my notes which were taken on August 7, 1998. The weather was warm and clear. BLMID - 2490, ID No. 20039, built in 1958. The map coverage used was the USGS quadrangle map "Mesa Cortada." Dimensions from the worksheet are 14.5' x 460' x 7'.

We started at the right abutment. We found the 1983 marker OK, on the wingwall. This spillway is parallel to the crest and crosses the road at a perpendicular angle (Safety?). It has Fourwing saltbush and Cholla in spillway.

The dam is made of clayey, loamey fill (maybe was resurfaced). The crest is uneven and cracked. Downstream face has fourwing saltbush, at right abutment has Chico, rabbitbrush and saltcedar. I suspect underground seepage. Rest of downstream face is very clean.

Outlet pipe open and has formed its own natural stilling basin under 40-inches of sediment. The outlet is still very similar to the picture of October 6, 1983. The sides are steep and now the saltcedar is thicker. At the hole along the side there is a dead coyote skeleton. It is remarkably preserved in a position of being stuck in the mud while drinking.

Erosion down downstream groin on the left side. Upstream face has several saltcedar; the pond is full of cattail. I found the 1958 marker on the concrete inlet box "Project 611." There is a 3 x 14-inch plank acting as flash board in front of the intake box. The concrete is OK. Rebar trash rack is OK. Intake pipe is rusty. Under the salt ceder is old wave action scar - I believe new clay has been placed across top. Mr. Chavez says there is a second pipe at saltcedar on the right side.

Notes for spreadsheet entry: Condition - P; Outlet, drilling and saltcedar.

Rio Puerco Detention Dam # 4

These are my notes which were taken on July 11, 1998. The weather was warm and partly cloudy. BLMID - 1762, ID No. 00072, built in 1963. The map coverage used was the USGS quadrangle map "Arroyo Chijuillita." Dimensions from the worksheet are 22' x 875' x 9'.

The crest with the road is uneven and is causing water to collect and form rivulets down the downstream face. There is harsh erosion on the downstream face of the left abutment. Erosion is evident on the upstream face around the sagebrush. Sagebrush is predominate on the right side. The dam is holding water to a depth of a couple of feet on the upstream toe. There is a five-feet tall stand pipe. There is light brush in the spillway.

Note for spreadsheet entry: Condition - F; sagebrush.

Rio Puerco Detention Dam # 7

These are my notes which were taken July 10, 1998. The weather was warm and partly cloudy. BLMID - 1771, ID No. 00073, built in 1963. The map coverage used was the USGS quadrangle map "Arroyo Chijuillita." Dimensions from the worksheet are 16' x 1550' x 9'.

We started at the left abutment. The dam is made with loamy, clayey soil. There is smooth bedrock (sandstone?) exposed at the upstream abutment on the right side (it shows downstream also). Directly across the dam, below the downstream toe, is a sink hole outlet in the natural soils. Rabbitbrush and sagebrush on the upstream and downstream faces. General erosion but the plants are on a pedestal about one-foot high (indicating that at least a foot of fill material has been lost).

The trash rack is OK. The standpipe is rusting around the bottom. The outlet pipe is open, visible, but 3/4 full of silt. There is water showing in the bottom of the inlet pipe (probably the soil in the outlet pipe is preventing full drainage).

Note for spreadsheet entry: Condition - F, rabbitbrush.

BLMID - 1771, Rio Puerco Detention Dam # 7, ID No. 00073
Picture 1, erosion around the outlet of the uppermost sinkhole, 7/10/98.

BLMID - 1771, Rio Puerco Detention Dam # 7, ID No. 00073
Picture 2, the entrance of a sink hole located downslope.

BLMID - 1771, Rio Puerco Detention Dam #7, ID No. 00073
Picture 3, erosion around the outlet of a second sink hole, 7/10/98.

BLMID - 1771, Rio Puerco Detention Dam #7, ID No. 00073
Picture 4, outlet pipe and location of sink holes, 7/10/98.

Notes taken on July 31, 1998. Cloudy and warm. Reservoir was filled from recent rain. I took a picture of further recent erosion down left downstream groin.

BLMID - 1771, Rio Puerco Detention Dam # 7, ID No. 00073
Picture 1, looking upstream at the outlet pipe and the
erosion down the left downstream groin, 7/31/98.

Rio Puerco Detention Dam # 8

These are my notes which were taken on July 11, 1998. The weather was warm and partly cloudy. BLMID - 1777, ID No. 00080, built in 1963. The map coverage used was the USGS quadrangle map "Arroyo Chijuillita." Dimensions from the worksheet are 22' x 943' x 8'.

The aluminum marker post is shot with bullet holes (rifle). The dam is made with loamy, clayey fill. There is an erosional scar from wave action on the upstream face.

It does have a trash rack that is starting to rust. The support angle irons are rusting, but the galvanized riser pipe is not discolored from rust. The outlet pipe is open.

There is Rabbitbrush on the downstream face. There is sagebrush along the groin. One-half of the way on the left abutment there is a rabbitbrush corridor down the upstream face. I found prairie dog holes in the dam. There is primarily sagebrush on the upstream face.
Note for spreadsheet entry: Condition - F; rabbitbrush and rodents.

Rio Puerco Detention Dam # 10

These are my notes which were taken on July 11, 1998. The weather was warm and partly cloudy. BLMID - 1782, Rio Puerco Detention Dam # 10, ID No. 20091, built in 1963. The map coverage used was the USGS quadrangle map "Arroyo Chijuillita." Dimensions from the worksheet are 15' x 805' x 9'.

We found the marker OK. I noticed high erosion on the downstream face around existing brush.

The outlet pipe is open and clear, but, it has been torn by clearing (back hoe?). The inlet riser pipe has no rust - only weathering. Sage and rabbitbrush upstream and downstream. Further along there is less brush - the sage seems to be dead. The rabbitbrush is 3-feet tall. There is a cattle (game) trail down the right groin (upstream). The spillway quite clean but has a road through it.

Note for spreadsheet entry: Condition - F; rabbitbrush.

Rio Puerco Detention Dam # 13

These are my notes which were taken July 10, 1998. The weather was warm and partly cloudy. BLMID - 2271, Rio Puerco Detention Dam #13, ID No. 20092, built in 1964.
The map coverage used was the USGS quadrangle map "Arroyo Chijuillita." Dimensions from the worksheet are 17' x 1700' x 7'.

We started at the at the right abutment. The road through the right abutment is now cut down to a depth of knee high. Rabbitbrush is now 6-feet tall on the downstream face. Outlet pipe is open but ½ full of silt. The inlet pipe is open and clear with water standing in the bottom.

On July 31, 1998, we drove to the right abutment and recorded the coordinates by Global Positioning System. This day dam is working (passing water) and is in good shape.

Note for spreadsheet entry: Condition - F, rabbitbrush.

Rio Puerco Detention Dam # 14

These are my notes which were taken on July 11, 1998. The weather was warm and partly cloudy. BLMID - 2032, Rio Puerco Detention Dam # 14, ID No. 20152, built in 1963. The map coverage used was the USGS quadrangle map "Arroyo Chijuillita." Dimensions from the worksheet are 13' x 702' x 9'.

On the left abutment/upstream face there is erosion around the thick rabbitbrush (some 6-feet tall). Wave action erosion at the high water line (2-feet wave escarpment). Higher amount of erosion seen upstream and downstream around brush. The natural soils seem to have more clay content and the accumulated sediment has more clay.

Both the riser pipe and the trash rack are rusty. There is only one foot of pipe showing and it has water standing in the bottom. The opening of the outlet pipe is open, but is rusting.

There is lots of brush in the spillway. The right side of spillway is eroding into the hillside. There is a berm for erosion prevention at 90 degrees to the dam on the right abutment. I did not see any sign of prairie dog.

Note for spreadsheet entry: Condition - F; spillway, outlet and rabbitbrush.

Rio Puerco Detention Dam #65

These are my notes which were taken on July 28, 1998. The weather was warm and clear. BLMID - 2731, Rio Puerco Detention Dam #65, ID No. 00086, built in 1967. The map coverage used was the USGS quadrangle map "San Luis." Dimensions from the worksheet are 22' x 743' x 10'.

This dam has been breached at the location of the discharge pipe. The breach is approximately 82-feet wide and 24-feet deep.

At the left abutment the spillway has silted in a lot from the far natural cut.

Left of the spillway there is a 200-feet slump on the upstream face. At top of this slump is longitudinal cracking and a rodent hole.

Note for spreadsheet entry: U, Saltcedar, and spillway.

BLMID - 2731, Rio Puerco Detention Dam #65, ID No. 00086
Picture 1, looking upstream from approximately 100 yds away, 7/28/98.

BLMID - 2731, Rio Puerco Detention Dam #65, ID No. 00086
Picture 2, looking upstream, 7/28/98.

BLMID - 2731, Rio Puerco Detention Dam #65, ID No. 00086
Picture 3, looking downstream, 7/28/98.

BLMID - 2731, Rio Puerco Detention Dam #65, ID No. 00086
Picture 4, from crest looking toward the left abutment and spillway.
Notice cutting in wall of spillway in background, 7/28/98.

BLMID - 2731, Rio Puerco Detention Dam #65, ID No. 00086
Picture 5, looking upstream through the breach, 7/28/98.

BLMID - 2731, Rio Puerco Detention Dam #65, ID No. 00086
Picture 6, opening of the inlet pipe and trash rock (note that the cone shaped rack has been pushed into the pipe (inverted) and still holding debris), 7/28/98.

Rio Puerco Detention Dam #90

These are my notes which were taken on July 28, 1998. The weather was warm and clear. BLMID - 2746, Rio Puerco Detention Dam #90, ID No. 20043, built in 1965. The map coverage used was the USGS quadrangle map "San Luis." Dimensions from the worksheet are 21.2' x 740' x 8'.

We started at the right abutment. We found the 1983 marker OK. The dam is made with loamy, clayey soil. The crest is quite rounded, not straight or even. Erosion channel down the face of right abutment due to runoff from natural hill. Sink hole/rodent hole in top of crest approximately 150-feet from right abutment. Deep rills on both faces.

Downstream face is clean except for snakeweed. There are large saltcedars at upstream toe of dam and at the outlet downstream.

The discharge works has a painted trash rack, a clean CMP standpipe which is open, and painted angle iron supports. We found the outlet was open and ½ full of water. The entire downstream channel is about ½ way filled with sediment.

The spillway is clean except for one Juniper. Its about ½ full of silt, from erosion filling it in from the left embankment.

Note for spreadsheet entry: F, saltcedar, and rodents.

Rio Puerco Detention Dam #91

These are my notes which were taken on July 28, 1998. The weather was warm and clear. BLMID - 2746, Rio Puerco Detention Dam #91, ID No. 20042, built in 1966. The map coverage used was the USGS quadrangle map "San Luis." Dimensions from the worksheet are 24' x 1654' x 10'.

We started at the left abutment. The spillway is clean only minor scour. We found the 1983 marker OK. There are cobblestones in the fill causing the fill to be soft. I found one spot of potential piping on the downstream toe. Very soft fill, the cattle tracks on the downstream slope are 1½ - 2-inches deep. Another cattle trail has breached the crest upstream from the cattle drinking tank. My guess is that both faces have eroded to a depth of two to three feet everywhere. Upstream there is a 2'-4-feet wave action erosion scar. The water in the reservoir is very clear!

Snakeweed and grass up and downstream. Lots of natural erosion and rills. Around grass and weeds there are pedestal clumps showing how much of the face has been eroded.

Large saltcedar trees along the upstream face.

Water was flowing through inlet box - in spite of lots of sticks on the trash rack. We took a picture of the suspended outlet pipe flowing. I took two other pictures trying to show what I call "pedestal clumps" indicating how much of the face has been eroded.

Note for spreadsheet entry: F, saltcedar, wave action or riprap.

BLMID - 2746, Rio Puerco Detention Dam #91, ID No. 20042
Picture 1, suspended outlet pipe, 7/28/98.

BLMID - 2746, Rio Puerco Detention Dam #91, ID No. 20042
Picture 2, looking at downstream face and pedestal clumps, 7/28/98.

BLMID - 2746, Rio Puerco Detention Dam #91, ID No. 20042
Picture 3, looking at upstream face showing Pedestals, 7/28/98.

Rio Puerco Detention Dam #130

These are my notes which were taken on August 14, 1998. The weather was warm and clear. BLMID - 2748, Rio Puerco Detention Dam #130, ID No. 20041, built in 1966. The map coverage used was the USGS quadrangle map "Cabezon Peak." Dimensions from the worksheet are 31.6' x 858' x 9'.

We started at the right abutment. We interrupted this inspection because of the presence of a large red bull. We went on up to USGS #1 and then returned and finished the inspection. The dam is made with loamy soils and the crest has some form left. Found a transverse crack.

The upstream face has saltcedar and snakeweed. I found a four-inch sink hole in crest which seemed too big for prairie dog and too small for badger (Mr. Beck thought it might be a fox hole in 1983). I also found three other sink holes (1 foot diameter), but I could not find exits.

The inlet pipe has larger diameter inlet works on top of the discharge pipe. There is water up to bottom of this larger top. We could not find the outlet.

Notes for spreadsheet entry: Condition - P; outlet, saltcedar and rodents.

Rio Puerco Detention Dam #131

These are my notes which were taken July 10, 1998. The weather was warm and partly cloudy. BLMID - 1785, Rio Puerco Detention Dam #131, ID No. 20090, built in 1963. The map coverage used was the USGS quadrangle map "Arroyo Chijuillita." Dimensions from the worksheet are 13' x 1898' x 8'.

We started at the at the left abutment. Dam is much like the condition survey of 4/8/84, with the exception that the sage is larger and there is large rabbitbrush on the upstream face. Prairie dogs continue to do damage to the dam. Inlet was open and clear, the outlet was open and clear.

Note for spreadsheet entry: Condition - F, rodents, rabbitbrush.

Rio Puerco Detention Dam #131 Drop Structure

We also visited this separate drop structure located downstream. These are my notes which were taken July 10, 1998. The weather was warm and partly cloudy. I would assume that the structure was built in 1963, at the same time of BLMID - 1785, Rio Puerco Detention Dam #131. The map coverage used was the USGS quadrangle map "Arroyo Chijuillita." We were not given any dimensions. The rabbitbrush and sagebrush is so thick that we could hardly find the dike. It has a spillway on the right abutment, and a stand pipe that "drops the water to a lower level in the outlet channel." The standpipe was open, but the outlet had sloughed and buried the outlet of the discharge pipe. There is a seep hole to the left of the drop structure. The dike is probably 400 feet long and 5-6-feet high. Dikes like this need maintenance also, and should be lumped in with the dams maintenance figures.

Note for spreadsheet entry: Condition - F, rodents, rabbitbrush.

Rio Puerco Detention Dam #132

These are my notes which were taken July 10, 1998. The weather was warm and partly cloudy. BLMID - 1788, Rio Puerco Detention Dam #132, ID No. 20089, built in 1963. The map coverage used was the USGS quadrangle map "Arroyo Chijuillita." Dimensions from the worksheet are 27' x 2240' x 9'.

We started at the at the right abutment. We found the 1983 marker bent over. The condition survey of 4/12/84, did not understand that this dam has what I call an "internal drop" structure. Mr. Chavez explained that the outlet pipe through the dam ends at a concrete headwall then bends downward to another headwall at the foot of the outlet channel. The outlet pipe in at the bottom of the outlet channel, not where they assumed that it would be. The outlet channel has been cleaned once, but is sloughing in from three sides and the outlet pipe is buried. We found rabbitbrush and sagebrush on the dam faces and Chico plants below the road.

There are seep holes along the side of the road, one of which Mr. Beck (1984) thought might be from a broken discharge pipe. Mr. Chavez disagrees that the outlet pipe is broken. I agree that if the pipe were broken, there would be disastrous evidence by now.

Notes taken on July 31, 1998. Cloudy and warm. We revisited the dam. We found that drainage from the bench and the road is causing worse erosion into a hole that was thought to be a leaking pipe.

Note for spreadsheet entry: Condition - P, outlet, rodents, rabbitbrush.

BLMID - 1788, Rio Puerco Detention Dam #132, ID No. 20089
Picture 1, drainage from the bench and road into hole thought to have been caused by a leaking outlet pipe, 7/31/98.

Rio Puerco Detention Dam #133

These are my notes which were taken July 11, 1998. The weather was warm and partly cloudy. BLMID - 2035, ID No. 20094, built in 1963. The map coverage used was the USGS quadrangle map "Arroyo Chijuillita." Dimensions from the worksheet are 24' x 578' x 9'.

The cap (marker) and wooden sign are in good shape. Rabbitbrush dominating the sage and there are Cedar bushes present. In places the rabbitbrush was too thick on the upstream face to see the surface. Slight erosion from wave action on the upstream face.

The riser pipe is open but has standing water in the bottom (no fresh air). Rebar trash rack is rusty, the angle iron supports are rusty and the galvanized pipe is discolored. We need to find and clear out the outlet opening. We found one of the concrete water block (thrust block) of the outlet pipe.

There is a diversion berm around the arroyo-cut which is breached. I found a one-foot diameter piping outlet hole downstream (source unknown). Here the soils seem sandy. We need to do maintenance on this berm downstream of the dam. There are rodent holes all over the downstream berm. There is brush in the spillway.

Note for spreadsheet entry: Condition - P; outlet, rabbitbrush and rodents.

Rio Puerco Detention Dam #134

These are my notes which were taken July 11, 1998. The weather was warm and partly cloudy. BLMID - 1792, Rio Puerco Detention Dam #134, ID No. 20093, built in 1963. The map coverage used was the USGS quadrangle map "Arroyo Chijuillita." Dimensions from the worksheet are 22' x 710' x 9'.

The wooden sign is intact. We found the marker OK. Minor erosion cutting at outlet of spillway (cutting across road). I wondered about the angle of the slopes (I wrote "Check slopes").

This dam has a square concrete (good shape) inlet structure with a 4-inch bar grid for a trash rack. The storage capacity reduced to a couple of feet. The outlet probably has an internal drop but is completely plugged. The headcut has filled in and completely covered outlet.

There is six-feet-tall rabbitbrush over the upstream slope. There are a couple of pinon trees on the top of the dam. I found a large prairie dog or badger hole in the right groin of the dam near the top. There is a prairie dog village in the natural ground upstream from the right groin. I found pinion pine and juniper in the spillway.

Note for spreadsheet entry: Condition - F; spillway, outlet, rabbitbrush and rodents.

Rio Puerco Dike # 7

These are my notes which were taken July 10, 1998. The weather was warm and partly cloudy. BLMID - 1772, Rio Puerco Dike # 7, ID No. 20153, built in 1963. The map coverage used was the USGS quadrangle map "Arroyo Chijuillita." Dimensions from the worksheet are 6.5' x 346' x 8'.

We started at the left abutment. The fill is loamy-clayey. There is no discharge works. Rabbitbrush and sagebrush. General erosion, but there are boulders in the fill. It would be helpful to reshape the surface.

Note for spreadsheet entry: Condition - F, rabbitbrush.

Round Valley Detention Dam

These are my notes which were taken on July 12, 1998. The weather was warm and sunny. BLMID - 1302, Round Valley Detention Dam, ID No. 20119, built in 1964. The map coverage used was the USGS quadrangle map "Johnson Trading Post." Dimensions from the worksheet are 12' x 2267' x 9'.

The crest of the dam is almost intact - road with tracks still showing. There seems to be a difference in fill; one is whiter colored? Looking closer, there is a distinct two-colored layer of fill. Rodent activity is in the top layer - mostly upstream. One-half way across the crest, a third coloration is found right on top which is almost white. On the bottom is a tan layer that is fast eroding. Next up is a "pink" layer that seems to be more resistant. Then on top is the one-foot of grey/white layer that is again eroding faster. The barrow pit for the grey/white fill is upstream from the left abutment.

There are rodent holes on the upstream face in sage (60-feet, 90-feet, and 250-feet from spillway) then it is riddled with holes on the right abutment. There is essentially no rabbitbrush. Found prairie dog holes on the downstream face and rodents in lower level. There are lots of rodents downstream from the downstream toe. Finally the rodent holes almost stop on the upstream face. Found mice holes near the top.

Hardly any erosion where there is grass on the downstream face. Erosion is occurring on the upstream side with sage. At a cattle trail crossing we lose the crest - lose 12 to 18-inches off the top. More erosion in middle of dam on both faces. There is small piping occurring on the downstream side? Two-thirds more erosion on the downstream face. Wave action escarpments up to three-feet in the form of benches.

We only found the top of the concrete block for the outlet pipe (internal drop structure) Obviously, the outlet pipe was plugged. The inlet structure was not found. It had been either destroyed or fully silted over.

Note for spreadsheet entry: Condition - P; inlet, outlet, sagebrush and rodents.

BLMID - 1302, Round Valley Detention Dam, ID No. 20119
Picture 1, looking upstream at Mr. Chavez standing on bedrock, 7/12/98.

BLMID - 1302, Round Valley Detention Dam, ID No. 20119
Picture 2, Mr. Chavez standing in erosion fill, 7/12/98.

BLMID - 1302, Round Valley Detention Dam, ID No. 20119
Picture 3, looking downstream at Mr. Chavez standing on original spillway floor, 7/12/98.

RSN Detention Dam #5

These are my notes which were taken on August 4, 1998. The weather was warm and clear. Overcast. BLMID - 2692, RSN Detention Dam #5, ID No. 00087, built in 1960. The map coverage used was the USGS quadrangle map "Sky Village." Dimensions from the worksheet are 19' x 886' x 8'.

We had to walk in to this dam because this dam is in a wilderness study area. We started at the left side in a steep, rocky, narrow spillway. The dam is made with loamy fill with a rounded crest. Detrimental vegetation includes saltcedar and fourwing saltbush upstream and downstream, with lots of rabbitbrush along the downstream toe. It has a cavity through the dam on the left side. The inlet is working but has lots of brush in the opening. The outlet is discharging into a pond. Notes for spreadsheet entry: Condition - U (cavity); saltcedar, rabbitbrush and fourwing saltbush.

BLMID - 2692, RSN Detention Dam #5, ID No. 00087
Picture 1, looking across the crest from left to right,
the stadia rod is in the inlet of a cavity, 8/4/98.

BLMID - 2692, RSN Detention Dam #5, ID No. 00087
Picture 2, Looking at downstream face at outlet of cavity. 8/4/98.

BLMID - 2692, RSN Detention Dam #5, ID No. 00087
Picture 3, Looking upstream from crest at the inlet works, 8/4/98.

BLMID - 2692, RSN Detention Dam #5, ID No. 00087
Picture 4, looking at the pool formed at the outlet pipe, 8/4/98.

RSN Detention Dam # 6

These are my notes which were taken on August 4, 1998. The weather was warm, overcast, and beginning to rain. BLMID - 2693, RSN Detention Dam #6, ID No. 20004, built in 1957. The map coverage used was the USGS quadrangle map "Sky Village." Dimensions from the worksheet are 17' x 826' x 6'.

This was the second dam we were walking to because of their locations in a wilderness study area. It has been breached with a cut estimated at 40 foot wide x 20 foot deep. We took one picture, the last on the roll (took others at the first dam on this hike), and left because of weather. Notes for spreadsheet entry: Condition - U (breached); saltcedar.

BLMID - 2693, RSN Detention Dam #6, ID No. 20004
Picture 1, looking downstream from edge of headcut formed through the breach, 8/4/98.

RSN Detention Dam # 7

These are my notes which were taken on August 4, 1998. The weather was warm and clear. BLMID - 2626, RSN Detention Dam #7, ID No. 00081, built in 1959. The map coverage used was the USGS quadrangle map "Ojito Spring." Dimensions from the worksheet are 23' x 523' x 10'.

We started at the left abutment. We found the 1983 marker OK. This dam has a rock spillway, but the headcut is at the outlet. A drop structure is needed for protection from sides.

This dam is made with loamy, slightly clayey soil. The water in this dam was manually pumped out at one time for fear that the dam would breach and flood the house downstream.

Fourwing saltbush upstream - saltcedar upstream and around water edge. Fourwing saltbush downstream - saltcedar below toe of dam. Rabbitbrush on the right side especially at the left abutment and outlet pipe. Wave action erosion has caused two benches; one two-feet and the other four to five feet. Lots of dead branches, twigs, etc., in along the upstream face.

Riser pipe silted full and rusting. The trash rack in place and rusty (40-inches above) sediment. A one-foot-long chunk of CMP is lying downstream. Outlet pipe completely submerged in sediment and sloughing from dam face and channel.

Cow trail at right abutment. Retopped on the far right side. No rodents.
Noted for spreadsheet entry: Condition - P; Safety, inlet, outlet, riprap and saltcedar.

RSN Detention Dam # 8

These are my notes which were taken on August 4, 1998. The weather was warm and clear. BLMID - 2695, RSN Detention Dam #8, ID No. 20001, built in 1969. The map coverage used was the USGS quadrangle map "Sky Village." Dimensions from the worksheet are 20' x 582' x 10'.

We started at the left abutment. Spillway clean except for fourwing saltbush. Slight erosion from natural left side.

The dam is made with loamy, clayey fill. The crest is uneven. There is heavy erosion cutting downstream between dam and rock face downstream. One erosional rill (rivulet) is cutting through crest just right of crack. Lots of rills (rivulets) on the downstream side of dam near center. I believe there has been over-topping which has been patched. They added fill to correct top of crest in this area to hold more water in the reservoir.

The dam is clean (quite) and forms a nice lake. Fourwing saltbush on the downstream side. There is an unusual bright green bush on the lower downstream face (unknown name). Fourwing saltbush upstream with saltcedar in and around water line. Seep holes in crest on the downstream side. Rabbitbrush starting on the downstream side. Seep holes in center of crest. Longitudinal crack in center of curve (left of saltcedar in outlet channel). Cattle trail by right abutment.

Hard gouging at spillway outlet. Rock ledges at different levels are letting water down. Water is 2-feet (vertical) from the crest and 1-foot from spillway outlet.
Notes for spreadsheet entry: Condition - U (patched); Spillway, saltcedar, rabbitbrush and fourwing saltbush.

BLMID - 2695, RSN Detention Dam # 8, ID No. 20001
Picture 1, very pretty blue colored body of water, 8/4/98.

RSN Detention Dam #9

These are my notes which were taken on August 4, 1998. The weather was warm and clear. BLMID - 2628, RSN Detention Dam #9, ID No. 20003, built in 1959. The map coverage used was the USGS quadrangle map "Sky Village." Dimensions from the worksheet 17' x 465' x 10'.

We started at the left abutment. The spillway is eroding-in from natural runoff to the left. The headcut (two to three feet deep) is to the left and it extends up to the spillway. There is light sage and Cholla in the spillway. Some scouring in the spillway channel opening downstream.

The dam is made with loamy, clayey fill. It is failing along the outlet pipe, there is now a sink/depression on the crest. On September 16, 1983, Mr. Beck documented that water was undercutting underneath the riser pipe. There is another seep hole to the right side of the failure, between saltcedars in the upstream face.

The downstream face is covered with fourwing saltbush. The upstream face has fourwing saltbushes and a wave action scar.

Notes for spreadsheet entry: Condition - U (cavity); Spillway, riprap and saltcedar.

BLMID - 2628, RSN Detention Dam #9, ID No. 20003
Picture 1, looking at downstream face, outlet of cavity next to the upper headwall of drop structure, 8/4/98.

BLMID - 2628, RSN Detention Dam #9, ID No. 20003
Picture 2, looking at downstream face, outlet of cavity next to the upper headwall of drop structure - larger perspective (wall is 3' tall), 8/4/98.

BLMID - 2628, RSN Detention Dam #9, ID No. 20003
Picture 3, looking at upstream face, inlet box and cavity entrance around inlet box, 8/4/98.

BLMID - 2628, RSN Detention Dam #9, ID No. 20003
Picture 4, looking at upstream face, new headcut forming in embankment behind inlet box, 8/4/98.

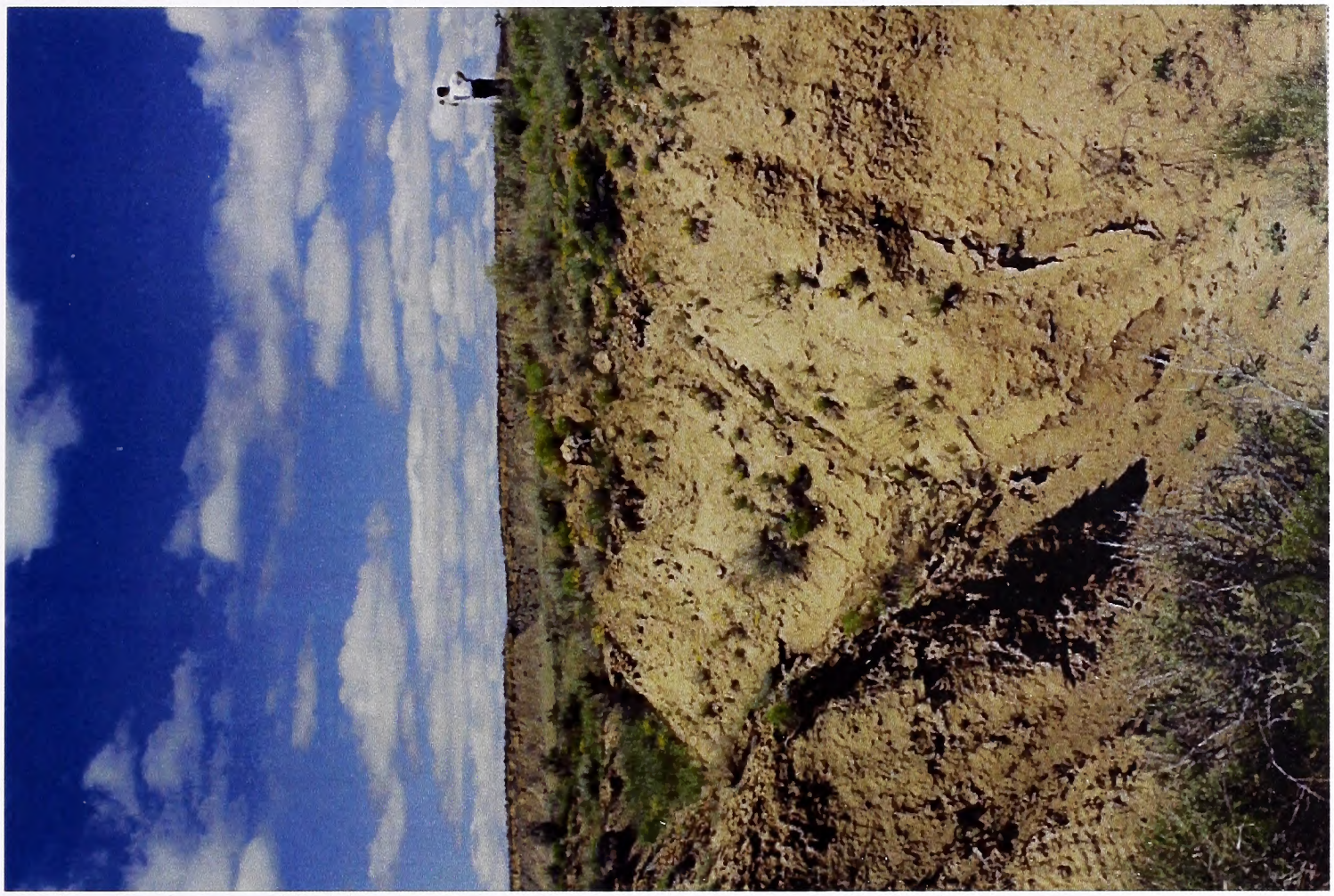
BLMID - 2628, RSN Detention Dam #9, ID No. 20003
Picture 5, looking at upstream face, closeup of larger entrance (eight feet tall) behind inlet box, 8/4/98.

RSN Detention Dam #10

These are my notes which were taken on August 4, 1998. The weather was warm and clear. BLMID - 2623, RSN Detention Dam #10, ID No. 20002, built in 1959. The map coverage used was the USGS quadrangle map "Sky Village." Dimensions from the worksheet are 16' x 685' x 7'.

On September 11, 1983, Mr. Beck made the comment that the spillway was eroded and showed a picture. We took another picture today.

On June 6, 1989, Mr. Earnest Chavez made the comment that the dam had a ten foot cavity. Today, the dam has a complete breach in addition to the cavity and breached spillway. Detrimental vegetation includes fourwing saltbush and saltcedar.
Notes for spreadsheet entry: Condition - U (breached); saltcedar and fourwing saltbush.



BLMID - 2623, RSN Detention Dam #10, ID No. 20002
Picture 1, looking upstream at spillway, 8/4/98.

BLMID - 2623, RSN Detention Dam #10, ID No. 20002
Picture 2, looking upstream where headcut has reached the sediment, 8/4/98.

BLMID - 2623, RSN Detention Dam #10, ID No. 20002
Picture 3, looking downstream at complete breach, 8/4/98.

BLMID - 2623, RSN Detention Dam #10, ID No. 20002
Picture 4, looking upstream at complete breach, 8/4/98.

BLMID - 2623, RSN Detention Dam #10, ID No. 20002
Picture 6, looking at downstream face with breach on right
and outlet pipe and cavity on left, 8/4/98.

BLMID - 2623, RSN Detention Dam #10, ID No. 20002
Picture 7, looking upstream into cavity exit (detail), 8/4/98.

BLMID - 2623, RSN Detention Dam #10, ID No. 20002
Picture 8, looking upstream at cavity exit and upper headwall (broader perspective), 8/4/98.

BLMID - 2623, RSN Detention Dam #10, ID No. 20002
Picture 9, looking downstream where we found the cavity entrance, 8/4/98.

BLMID - 2623, RSN Detention Dam #10, ID No. 20002
Picture 10, close-up of cavity entrance, 8/4/98.

RSN Detention Dam #18

These are my notes which were taken on August 3, 1998. The weather was warm and clear. BLMID - 0884, RSN Detention Dam #18, ID No. 00084, built in 1961. The map coverage used was the USGS quadrangle map "Ojito Spring." Dimensions from the worksheet are 21' x 1386' x 10'.

We started at the at left abutment. We found the 1983 marker OK; the 1961 marker pipe is bent over and the cap is gone. The dam is made with loamy, clayey fill. The fill is so soft that you sink in (downstream). The dam has a bend in the crest which is formed over the rock hill. I referred to this distinct feature to mark two halves of the dam. In the second half (right side) the dam is different. I found a transverse crack about 85-feet from the bend. This crack is occupied with a "prairie dog city" on the downstream side. Actually there are five such transverse cracks. We found a second discharge pipe in this second half (right side).

We found fourwing saltbushes all over both faces. There is one large saltcedar right of inlet pipe on the upstream face.

The inlet pipe is partially coated (protective coating). Support angle irons are rusty. The trash rack is in place but it is rusty.

The dam is riddled with mice on the right upstream face; prairie dog burrows and towns, gopher holes; and seep holes.

Notes for spreadsheet entry: Condition - P; Inlet, saltcedar and rodents.

RSN Detention Dam #19

These are my notes which were taken on August 3, 1998. The weather was warm and clear. BLMID - 1468, RSN Detention Dam # 19, ID No. 20011, built in 1962. The map coverage used was the USGS quadrangle map "Ojito Springs." Dimensions from the worksheet are 12' x 1503' x 9'.

We started at the right abutment where erosion is cutting into the reservoir. It needs slope stabilization. The dam is made with loamy, clayey fill. Actually it is zoned fill (layered fill on the left side) with more tan colored fill underneath. There are rodents in the tan layer - prairie dog holes upstream and downstream in the tan layer. The wingwall is also of the tan material and has rodents. The dam has a small slump on the upstream face (right of the bend) which stops in the bend and at a saltcedar (slump is 6-feet x 175'). I suspect underground seepage of water at the bend. There are Chico downstream. There seems to be lots of outwash along the downstream toe (erosion from dam?). There is a four to five foot high wave action escarpment (slightly above the inlet box).

Dam is really clean downstream; a few fourwing saltbushes. It is also really clean upstream until there is a row of Salt Ceders along high water mark- in face of dam. There are also fourwing saltbush higher on the upstream face.

Cement around inlet looks good. Rebar trash rack has surface rust. 1963 marker in concrete box (Proj. MI-282-E RSN DD19). Outlet of pipe is plugged from sloughing around the headcut.

The spillway is clean but eroding in from the natural bank. It has erosional scars on the floor of outlet.

Notes for spreadsheet entry: Condition - P; spillway, outlet and rodents.

RSN Detention Dam #25

These are my notes which were taken on July 27, 1998. The weather was warm and partly cloudy in the morning and then cloudy in the afternoon. BLMID - 2870, RSN Detention Dam #25, ID No. 20044, built in 1967. The map coverage used was the USGS quadrangle map "San Luis." Dimensions from the worksheet are 19.3' x 675' x 9'.

We started at the right abutment. Spillway quite clean.

The dam is made with loamy fill, with lots of sandstone in fill. The crest still looks like the original crest. However, on the left side the crest distinctly slopes upstream. There is a sink hole in the crest which is draining back upstream (two-feet below crest).

Thick rabbitbrush, sagebrush, snakeweed, saltcedar, and fourwing saltbushes are on the upstream face. There are dead rabbitbrush and live saltcedar at the outlet pipe.

Upstream in the sediment there is a erosional channel draining to a sink hole. On the other side of the dam, Mr. Chavez found a cavity that runs through a wide bench, through head wall and the drop. This is in the open, but close to the end of the rabbitbrush downstream.

The dam has a painted trash rack, a clean CMP inlet pipe which is four-feet tall.

Notes for spreadsheet entry: Condition - U (Seeping): Outlet, saltcedar, rabbitbrush, fourwing saltbushes and drilling.

BLMID - 2870, RSN Detention Dam #25, ID No. 20044
Picture 1, erosional channel through sediment and rabbitbrush to a seep hole, 7/27/98.

BLMID - 2870, RSN Detention Dam #25, ID No. 20044
Picture 2, outlet of seep hole - actually downstream from toe, 7/27/98.

RSN Detention Dam #26

These are my notes which were taken on July 28, 1998. The weather was warm and clear. BLMID - 3531, RSN Detention Dam #26, ID No. 20645, built in 1968. The map coverage used was the USGS quadrangle map "San Luis." Dimensions from the worksheet are 15.4' x 800' x 10'.

We started at the left abutment. We found both markers OK. The dam is made with loamy soil. It has a broad flat crest with lots of natural erosion. Approximately twelve feet to the right of pipe crossing is a series of deep transverse cracks and outlet holes three to four feet deep. At 30 feet right of the crossing of the outlet pipe is a depression in the crest. From 107 to 130 feet to the right is a linear alignment of holes on the upstream face 4-feet (vertical) down from crest (a longitudinal crack). At 110 feet right of the outlet pipe crossing I found a crack in down stream face - two feet below the crest. In this area I found a 15-inch diameter hole that has a strong "wild" smell (coyote?). The upstream face also has a wave-action erosional scar.

Lots of mice just off downstream toe. Found a Pack-rats nest on the upstream face. At 55 feet, 75 feet and 100 feet, by the point of intersection of the curve in the dam, there are a lot of rodent holes and seep exit holes on the downstream face. Down the upstream face opposite this inlet there are prairie dog holes. There are several rodent holes around the headwall. At 75 feet to the right is a prairie dog hole upstream of crest and two feet below.

I found the inlet to a seep hole three to four feet down from crest (vertical), but fourwing saltbush is too thick to assess the damage. The location is above the abutment of a wing-wall extending downstream. At 65 feet left of the outlet pipe crossing is the inlet of a seep hole three-feet from crest. Seep depressions and holes have eaten half way through crest - the deepest seep is three to four feet deep. I found another inlet to a seep hole under sagebrush approximately eight to ten feet (vertical) below the crest. At 10 feet left of the outlet pipe crossing is a small outlet of a seep two feet below the crest. There is outlet for seep/piping to the left of the exposed outlet headwall. Above the headwall itself are inlets to seep holes. More drainage is causing erosional cutting around the right of the headwall.

The outlet pipe does not cross the dam at 90° (looking at angle from inlet to headwall). We found the inlet pipe clean. Outlet pipe buried seep holes in sloughing material (You can see the headwall). We found the trashrack still showing original silver paint. It looks like a splice has been made to the riser inlet pipe. Perforations are only in the top foot (total exposure of the riser is two feet).

Spillway is fairly clean but there are Juniper, sagebrush and fourwing saltbushes.
Note for spreadsheet entry: P; outlet pipe, fourwing saltbush and, rodents.

BLMID - 3531, RSN Detention Dam #26, ID No. 20645
Picture 1, looking upstream down the upstream face at transverse crack and sinkholes, 7/28/98.

BLMID - 3531, RSN Detention Dam #26, ID No. 20645
Picture 2, looking upstream at the downstream face at the same transverse crack and sinkholes, 7/28/98.

BLMID - 3531, RSN Detention Dam #26, ID No. 20645
Picture 3, longitudinal crack four feet down from crest on upstream face.
Probably six to eight feet (vertically) up from sediment, 7/28/98.

BLMID -3531, RSN Detention Dam #26, ID No. 20645
Picture 4, crack in down stream face - two feet below the crest, 7/28/98.

RSN Detention Dam #27

These are my notes which were taken on July 27, 1998. The weather was warm and partly cloudy in the morning and then cloudy in the afternoon. BLMID - 2871, RSN Detention Dam #27, ID No. 0089, built in 1967. The map coverage used was the USGS quadrangle map "San Luis." Dimensions from the worksheet are 28.3' x 1091' x 10'.

We started at the right abutment. We found the 1967 and 1983 markers OK. The crest is uneven and there is limestone in the fill. Lots of natural weathering rivulets, clumps (pedestals) and underbrush. There is a possible slump associated with a transverse crack at the beginning of the curve. Upstream there is wave-action erosion from three to five feet. There is a cattle trail across wing-wall and left abutment.

I found quite a few holes in this dam (small). There two seep holes; one under dead sage (old rodent holes), and another at the high water line on the upstream face 32-feet right of inlet pipe. There are several sink holes.

Vegetation consists of a saltcedar tree on the upstream toe and fourwing saltbush.

There are rodents and one pack-rat's nest close to downstream toe.

We found a painted trash rack in good shape and a clean CMP discharge pipe.

The spillway is clean except a dozen fourwing saltbushes. Fairly bad erosion cut out of spillway one to two feet deep. I recommend extending wing wall 100 to 200-feet.

Notes for spreadsheet entry: Condition - P; Slump, spillway, saltcedar and rodents.

RSN Detention Dam #28

These are my notes which were taken on July 26, 1998. The weather was warm and clear. BLMID - 2873, RSN Detention Dam #28, ID No. 00029, built in 1967. The map coverage used was the USGS quadrangle map "Cabezon Peak." Dimensions from the worksheet are 20.7' x 820' x 9'.

We started at the right abutment. We found the both markers OK (1967 and 1983). Road through spillway (cut a lot). Both natural sides eroding into spillway. There is fourwing saltbush in spillway.

The dam is made with loamy fill which is quite soft. The crest is well rounded with lots of natural erosion. There is wave-action erosion on the upstream face (three to four feet).

Vegetation consists of fourwing saltbush, snakeweed, and Sage.

I found rodent holes in the upstream face, downstream face and at the toe. I found one badger hole/seep hole/(coyote?) on the downstream face.

There are several seep holes. A rather large one is located six-feet down from crest (27-feet to outlet) at the high water mark. At this location there may be a transverse crack, because I found holes at the crest also.

The trash rack has the original paint, and is in good shape. The five foot tall inlet pipe is clean, but no protective coating. There are perforations in the upper 3-feet. The outlet pipe is open.

Prairie dog hole downstream, mice holes in fourwing saltbush by left abutment downstream.

I found evidence of seepage by the headwall and a pack rat's nest.

Notes for spreadsheet entry: Condition - U (Seep hole): riprap and rodents.

BLMID - 2873, RSN Detention Dam #28, ID No. 00029
Picture 1, looking upstream at downstream face at the outlets of seepage (transitional crack), 7/26/98.

BLMID - 2873, RSN Detention Dam #28, ID No. 00029
Picture 2, looking upstream at longitudinal crack and sink-holes, 7/26/98.

BLMID - 2873, RSN Detention Dam #28, ID No. 00029
Picture 3, looking downstream at a large sinkhole, 7/26/98.

BLMID - 2873, RSN Detention Dam #28, ID No. 00029
Picture 4, looking downstream at upstream face where we found a seepage inlet below this large bush at the water line (green grass), 7/26/98.

RSN Detention Dam #29

These are my notes which were taken on July 27, 1998. The weather was warm and partly cloudy in the morning and then cloudy in the afternoon. BLMID - 2869, RSN Detention Dam # 29, ID No. 20018, built in 1967. The map coverage used was the USGS quadrangle map "Cabezon Peak." Dimensions from the worksheet are 12.8' x 635' x 9'.

We started at the right abutment. The spillway has rabbitbrush, sage, juniper and it needs cleaning. At the outlet, erosion is causing the headcut to move toward the spillway. Erosion has cut through the wing wall. At about 120 to 155 feet of the wingwall needs rebuilding. The erosion is from natural drainage cutting through spillway.

We found two markers (1967 and 1983) in good shape. The dam is made with loamy, clayey fill with much natural erosion on both faces. The crest is rounded and uneven. At 110-feet, the crest width is gone on the left side. I noted a three foot wave-action scar. There is one cattle trail on the right and two on the left abutment. At 25-feet right of pipe there is a sink hole in crest.

Fourwing saltbush, sagebrush, snakeweed and thick saltcedar in reservoir (sage seems to be dying). The fourwing saltbushes on the upstream face are too think to walk through.

I found rodent activity (prairie dog). I found a pack-rat's nest upstream and a huge pack rat's nest downstream (5-feet tall).

The trash rack painted. CMP clear, but it looks spliced. Natural stilling basin at outlet. At 90-feet from right abutment (markers), rodent holes in crest are carrying water back to reservoir. Notes for spreadsheet entry: Condition - P: Spillway, saltcedar and rodents (rats).

RSN Detention Dam #32

These are my notes which were taken on July 26, 1998. The weather was warm and clear. BLMID - 3532, RSN Detention Dam #32, ID No. 20012, built in 1968. The map coverage used was the USGS quadrangle map "Holy Ghost Spring." Dimensions from the worksheet are 12' x 1447' x 9'.

We started at the right abutment. We found both markers (1968, 1983) OK on the other side. The crest is tan colored and below is more gray, loamy, clayey fill. The crest is well rounded and uneven. There is lots of natural erosion. I believe there is large seepage through the dam through a transverse crack at 233 feet. There is also seep hole on the upstream crest. It is a little confusing because I found a sink hole in sediment that I think was the location of an inlet. There is a sink hole in downstream face (15-inches across). Another big sink hole on the downstream bench. I assumed this was the location of one outlet pipe. Then I found another outlet pipe and head wall. Its outlet natural stilling basin is essentially plugged with brush. But we found the standing inlet pipe. The trash rack had been removed but I found it close-by. This inlet pipe seems to have been spliced and is now open. Thirdly, I noted what I believed might be another outlet (not by dowsing). There is an old and buried inlet.

Vegetation includes saltcedar, fourwing saltbush, sagebrush, yellow flowers, snakeweed. Both faces have a lot of fourwing saltbushes. Its like a saltcedar forest in the reservoir and along the upstream water line. Rodent activity includes prairie dogs, pack-rat, mice and badgers. Spillway clean but eroding (natural) from other side.
Notes for spreadsheet entry: Condition - U (seep): Inlets, outlets, saltcedar, fourwing saltbush, and rodents (including pack rats and badgers).

BLMID - 3532, RSN Detention Dam #32, ID No. 20012
Picture 1, looking upstream at outlets of seep through dam, 7/26/98.

BLMID - 3532, RSN Detention Dam #32, ID No. 20012
Picture 2, looking downstream at upstream face at entrance to seep hole through dam, 7/26/98.

RSN Detention Dam #34

These are my notes which were taken on July 26, 1998. The weather was warm and clear. BLMID - 3506, RSN Detention Dam #34, ID No. 20013, built in 1968. The map coverage used was the USGS quadrangle map "Holy Ghost Spring." Dimensions from the worksheet are 17' x 640' x 8'.

We started at the right abutment and spillway. Spillway has erosion from both sides and needs cleaning and to be redefined. It looks like the wingwall has been pushed into the spillway and a pond developed (small, 100-feet across). Spillway floor is eroding at exit. Spillway has several benches in the floor caused by erosion.

We found both markers; the 1968 marker is lying on the ground, but the 1983 is OK. The dam is made with clayey, loamy fill. The Wave action erosion is about four feet tall. To the right of the outlet pipe there is 50-feet of deep longitudinal cracking. I did not see any evidence of transverse cracking at 75-feet from right abutment. I suspect that it has been patched, because in this area there is more clay-like topping verses clay with gravel down slope. There are several rodent and sink holes.

Saltcedar trees all around and some fourwing saltbush. This dam has an internal drop structure.

The trash rack is inverted. The CMP pipe is exposed but clear. The outlet is covered. Notes for spreadsheet entry: Condition - U (Patched): Spillway, saltcedar, outlet and rodents.

BLMID - 3506, RSN Detention Dam #34, ID No. 20013
Picture 1, looking at longitudinal crack from right to left, 7/26/98.

BLMID - 3506, RSN Detention Dam #34, ID No. 20013
Picture 2, looking upstream at downstream face of dam.
Mr. Chavez is standing at the longitudinal cracks, 7/26/98.

BLMID - 3506, RSN Detention Dam #34, ID No. 20013
Picture 3, Outlet seepage above upper head wall, 7/26/98

BLMID - 3506, RSN Detention Dam #34, ID No. 20013
Picture 4, looking upstream at the downstream face of dam, 7/26/98.

RSN Detention Dam #35

These are my notes which were taken on July 27, 1998. The weather was warm and partly cloudy in the morning and then cloudy in the afternoon. BLMID - 3505, RSN Detention Dam #35, ID No. 20046, built in 1969. The map coverage used was the USGS quadrangle map "San Luis." Dimensions from the worksheet are 16.8' x 705' x 9'.

We started at the right abutment and found both of the markers OK. The dam is made with loamy fill and has some sandstone rocks. One cattle trail crossing at abutment (upstream slope). The first quarter is fairly clean with fourwing saltbush and sagebrush. There is one big saltcedar at the fence. Lots of fourwing saltbush and rabbitbrush below downstream toe. The rabbitbrush seems to be dying along the minor wave action scar. I found one prairie dog hole ½ way down.

The trash rack is OK. The CMP pipe still has protective coating. The support braces are OK. However, the outlet of the pipe is plugged. There are seep holes along the downstream toe opposite of the riser pipe that are causing erosion further down.

I found a prairie dog village in wingwall, but the spillway is quite clean.
Notes for spreadsheet entry: Condition - P; Outlet, saltcedar, rabbit, and fourwing saltbush.

RSN Detention Dam #39

These are my notes which were taken on July 26, 1998. The weather was warm and clear. BLMID - 3507, ID No. 20016, built in 1968. The map coverage used was the USGS quadrangle map "Holy Ghost Spring." Dimensions from the worksheet are 14' x 737' x 6'.

We started at the at left abutment. The spillway is broad, flat and clean. We found both of the two markers (1968, 1984) in good shape. The dam is made with loamy, clayey fill. Top has rounded but appears straight and level. Wave action scar (minor). On the right side there are a couple of intrusions into the crest: 1) I found one sink hole in crest (may be old prairie dog?), and 2) one sink hole upstream slope, 6-feet down (vertically) from crest (may be rodent hole (old)). There are bushes growing in them.

Below the left abutment downstream on the natural bench is 3 sink holes with badger holes that are seeping water through them and they are getting larger. These are opposite of a saltcedar tree on the upstream face. I assume this is the same area earlier reported (9/19/93). I did not find the crack active; I found the surface healed - plants growing in a large rivulet near left center on the upstream face.

Vegetation consists of fourwing saltbushes, snakeweed, sage and one large saltcedar in the sediment.

I found the trash rack lying beside inlet pipe. The support braces are rusting. The stand pipe is still coated. Inside some sticks and water showing. Outlet of pipe is plugged, it is completely covered by sloughing on three sides.

Notes for spreadsheet entry: Condition - U: outlet, saltcedar and rodents.

BLMID - 3507, RSN Detention Dam # 39, ID No. 20016

Picture 1, looking downstream at sinkhole (18 feet long x 10 feet wide - measuring with the rod). The lath marks other smaller sinkholes, 7/26/98.

RSN Detention Dam #40

These are my notes which were taken on July 26, 1998. The weather was warm and clear. BLMID - 3508, RSN Detention Dam #40, ID No. 20014, built in 1968. The map coverage used was the USGS quadrangle map "Holy Ghost Spring." Dimensions from the worksheet are 30' x 1625' x 10'.

We started at the left abutment (road). On the right abutment we found both markers (1968, 1984). The new one is OK but the old marker is bent over. The dam is made with loamy, silty soil. Lots of natural erosion and the crest is uneven. There is an old slump on the downstream face 1/5 way across with two sink holes in the crest above the slump. Upstream the wave-action erosion is two to three feet.

The dam is very clean on the left abutment; a few fourwing saltbushes and snakeweed. Through the middle third of the dam is a row of huge saltcedar trees along the water line upstream. The greenest trees are in the thickest, deepest area. Downstream there are more fourwing saltbushes and sage through the middle area of the dam.

It is a holy dam with rodent holes and seepage holes.

The trash rack is OK. Stand pipe is OK - open no protective coating. Support irons are OK but not level. Outlet open and inviting more headcut.

Spillway is eroding-in from both sides. There is slight cutting on the spillway floor at the outlet.

Notes for spreadsheet entry: Condition - P: Slump, saltcedar, riprap and rodents.

RSN Detention Dam #43

These are my notes which were taken on July 26, 1998. The weather was warm and clear. BLMID - 3509, RSN Detention Dam #43, ID No. 20015, built in 1968. The map coverage used was the USGS quadrangle map "Holy Ghost Spring." Dimensions from the worksheet are 29' x 496' x 17'.

We started at the left abutment. Spillway is very poorly defined and has some brush. It needs reshaped. We found the 2 markers (1968 - 1983) OK. The crest actually resembles original design - it may have been bladed for road. Downstream face very clean. Upstream there are small saltcedar trees along the toe.

The trash rack is caved-in (with brush). Standpipe is open but corroded through at base. Support braces are OK. Outlet pipe open. There are saltcedar growing above headwall. Old slump right of outlet on the downstream face. 2 minor wave action benches (erosional) 2-3'.

Notes for spreadsheet entry: Condition - P: Slump, inlet, outlet, saltcedar and rodents.

BLMID - 3509, RSN Detention Dam # 43, ID No. 20015
Picture 1, looking at the hole in the stand pipe, 7/26/98.

BLMID - 3509, RSN Detention Dam # 43, ID No. 20015
Picture 2, looking at standpipe showing the 5 feet of
sediment above the hole in the pipe, 7/26/98.

RSN Detention Dam #46

These are my notes which were taken on August 3, 1998. The weather was warm and clear. BLMID - 0877, ID No. 00096, built in 1961. The map coverage used was the USGS quadrangle map "Cabezon Peak." Dimensions from the worksheet are 22.9' x 861' x 12'.

We started at the at left abutment. We found the 1961 marker (R-166), and the 1983 marker OK on the right side. I suspect a layered fill. Almost a five to six foot bench all along upstream face. It would be softer on the top with lots of prairie dogs. It would have a harder fill underneath which is not weathering as fast. At left side around the corner the crest is lighter in color and much more rounded. In addition, there is a mild three foot tall scar.

Upstream there is lots of fourwing saltbush. One big saltcedar. Downstream face there is a lot of fourwing saltbush and some Cholla. Rodent activity includes prairie dog cities, the first is two feet from the crest, a second and a third to the right of outlet, and a fourth near the right abutment. Mice holes at crest.

Five-foot tall stand pipe with some protective coating. The trash rack has surface rust. Support angle iron is rusting. Sediment is over the perforations in the riser pipe. Outlet pipe is open and working. There is lots more erosion into spillway. Lots of fourwing saltbushes. It needs cleaning and redefined.

Note for spreadsheet entry: Condition - F; Spillway, saltcedar and fourwing saltbush and rodents.

RSN Detention Dam #51

These are my notes which were taken on July 27, 1998. The weather was warm and partly cloudy in the morning and then cloudy in the afternoon. BLMID - 2868, RSN Detention Dam #51, ID No. 20017, built in 1967. The map coverage used was the USGS quadrangle map "Cabezon Peak." Dimensions from the worksheet are 15.5' x 891' x 9'.

We started at the right abutment. Few sage and fourwing saltbushes in spillway. We found the 1983 marker OK. The dam is made with loamy, clayey fill. The crest is rounded and it and the downstream face are covered with fourwing saltbush, snakeweed and sagebrushes. Several large saltcedar in reservoir. I found a swale in the left crest between two transverse cracks and a six-foot sink hole. I found a circular three-feet diameter depression in the crest which is 1-1/2 feet deep. Upstream the wave-action erosion is two feet tall.

I found several pack-rat's nests. I suspect at least one of them is in a transverse crack; it is along the downstream toe opposite 2 huge saltcedars upstream. I found a gopher burrow on the downstream face, and rodents (6-feet up from toe).

It has a painted trash rack and a clean, open CMP riser pipe.

The extreme right and left abutments are very clean. The brush is heaviest between transverse cracking. In places the bushes are too heavy to get through. I suspect there is seeping from saltcedars/rats nest/depression in crest and the sink holes downstream.

Notes for spreadsheet entry: Condition - U (seepage): Slump, saltcedar, fourwing saltbush, rodents (rats).

BLMID - 2868, RSN Detention Dam #51, ID No. 20017
Picture 1, downstream toe and sinkhole, Mr. Chavez' rod shows nine feet, 7/27/98.

RSN Detention Dam #61

These are my notes which were taken on July 27, 1998. The weather was warm and partly cloudy in the morning and then cloudy in the afternoon. BLMID - 2872, RSN Detention Dam #61, ID No. 00028, built in 1967. The map coverage used was the USGS quadrangle map "Cabezon Peak." Dimensions from the worksheet are 9' x 1980' x 10'.

We started at the left abutment. The spillway has sage, fourwing saltbush and Cholla. We found the 1983 marker OK. The dam is made with loamy fill and has a rounded crest. On the right side the crest still shows some shape. Lots of natural erosion. Up stream the wave-action erosional scar is two to three feet.

It is clean to the first point of intersection in curve (where curve starts). It has fourwing saltbush, juniper and dead sage. In the middle, the fourwing saltbush is too thick to walk through. Right abutment after the second point of intersection is much cleaner.

There are rodent holes (prairie dogs) on the downstream slope and on the crest and mice on the downstream face.

It has a painted trash rack, clean CMP pipe which is open. The outlet is open and similar to 1983 picture.

There is a downstream secondary drop structure that has been over-topped but is OK. We need to clean brush and check it out - it is stopping a large headcut.

Notes for spreadsheet entry: Condition - F; fourwing saltbush and rodents.

RSN Detention Dam #62

These are my notes which were taken on July 27, 1998. The weather was warm and partly cloudy in the morning and then cloudy in the afternoon. BLMID - 2867, RSN Detention Dam #62, ID No. 00088, built in 1967. The map coverage used was the USGS quadrangle map "Cabezon Peak." Dimensions from the worksheet are 13.4 x 2200 x 10.

We started at the left abutment. We found both of the markers OK (1983 and 1967). Tapered left abutment swings around parallel to headcut. The dam is made with loamy, clayey fill which is soft and shows pronounced cattle tracks. Lots of natural erosion (rivulets, etc). The crest becomes rounded. Upstream is a three foot wave-action erosion scar. There is an unusual new headcut forming in the bench below the downstream toe. It is about 55 feet left of the headwall. It is literally about 30-feet deep and approximately three feet wide. At 10 to 15 feet left of the headwall is the pictured (1983) seepage. At 40 feet right is some old seepage, and I suspect there is the seepage continues.

Vegetation consists of saltcedar, dead sage, live sage and snakeweed. There are large saltcedars (upstream toe) and rabbitbrush on the upstream face.

There is a three foot diameter sink hole within 10-feet of the markers. I found four sink holes and several small seep holes through this dam. In addition, I found prairie dog holes, gopher holes (covered up the opening), mice, and a pack rat's nest on the downstream face. There seems to be a lot of outwash below the rat's nest. An animal has been pawing (digging) at the fill on the downstream face. There are mice holes all along and I suspect that a coyote is digging up mice at these places where there is an animal pawing at the fill.

It has a painted trash rack on a clean, open inlet pipe. The outlet is plugged.

The large spillway is covered with sage and is eroding-in from both sides. There is one very large prairie dog city in the spillway.

Notes for spreadsheet entry: Condition - P: Outlet, saltcedar, rabbitbrush and rodents.

BLMID - 2867, RSN Detention Dam #62, ID No. 00088
Picture 2, looking down a thirty foot deep headcut at toe of dam, focus on rock and tape (20' deep but not to bottom) and can actually see the rock, 7/27/98.

RSN Diversion #47

These are my notes which were taken on August 3, 1998. The weather was warm and clear. BLMID - 1472, RSN Diversion #47, ID No. 20010, built in 1962. The map coverage used was the USGS quadrangle map "Ojito Spring." Dimensions from the worksheet are 8' x 1178' x 8'.

We started at the left abutment. We found the 1962 and 1983 markers OK. The dam is made with loamy, clayey fill. I later noted that it is a layered dam with lighter colored fill on top and more brown loamy, clayey fill on the bottom. The predominant gopher holes and prairie dog holes are in the lower level. Rounded crest, but straight and level. I found a transverse crack 3/4 way across the dam (holes/depression in crest; seep holes downstream). Eighty percent across the dam is another transverse crack. The dam is more worn and has more bushes up and down stream faces between these cracks.

Vegetation includes fourwing saltbush on both faces. One saltcedar on the upstream face at an old pipe outlet (dowsing).

Spillway is full of fourwing saltbushes and Cholla; it needs cleaning and reshaping.
Notes for spreadsheet entry: Condition - P; spillway, inlet, outlet, riprap, saltcedar, fourwing saltbush and rodents.

Sam Houston Detention Dam

These are my notes which were taken on July 15, 1998. The weather was warm and clear. BLMID - 2293, Sam Houston Detention Dam, ID No. 20085, built in 1956. The map coverage used was the USGS quadrangle map "Mesa Portales." Dimensions from the worksheet are 16' x 443' x 7'.

Spillway needs cleaning of sage and rabbitbrush (may need reshaping). We found the both markers OK (1956). The dam is made with loamy, clayey soils with rocks in the fill. The crest shape is lost (rounded). At 60-feet the rounded barrow pit (reservoir) approaches upstream toe with bench. At 140-feet the toe extends into the barrow pit (point of intersection of curve on the crest). Very clear downstream until into curve, then erosion is pronounced on the downstream face. Lots of rabbitbrush at waterline and Sage on the right abutment. A cattle trail crosses the crest with depression.

The inlet structure is in good shape, it is a seven inch CMP pipe out of a concrete box. The inlet pipe has coating on the outside! The trash rack in good shape and clear. The outlet pipe is covered and we did not find; found upper headwall. Found some rodent activity 20-feet to the right and 20-feet to the left of inlet structure.

Notes for spreadsheet entry: Condition - P; Outlet, rabbitbrush and rodents.

Sam Houston Detention Dam

These are my notes which were taken on July 15, 1998. The weather was warm and clear. BLMID - 2296, Sam Houston Detention Dam, ID No. 20086, built in 1956. The map coverage used was the USGS quadrangle map "Mesa Portales." Dimensions from the worksheet are 21' x 373' x 7'.

We started at the from left abutment. We found both of the markers (1984, 1956). The dam is made with loamy, clayey fill. There seems to be a more yellow colored layer on the right side (downstream). The crest completely gone - rounded. We experienced a lot of wind gusts, with the wind off of the reservoir area. Downstream slope has weathered into almost steps. Live sagebrush on both abutments with thick rabbitbrush in the middle of dam. Found rodent holes in the top layer. On the right abutment the crest is more intact. Minor brush (sage and rabbit) in spillway. Spillway wingwall downstream needs reshaped.

Notes for spreadsheet entry: Condition - P; spillway, inlet, outlet, rabbitbrush and rodents.

San Cas G.P. Dam

These are my notes which were taken on July 24, 1998. The weather was warm but overcast and cloudy. BLMID - 0125, ID No. 20130, built in 1953. The map coverage used was the USGS quadrangle map "Tinian." Dimensions from the worksheet are 21 x 659' x 5'.

We started right abutment which is against a sandstone ridge with spillway. We found the 1984 marker OK. The dam is made with loamy, clayey soil. The crest is not level and it has been eroded. Lots of erosion downstream. There is a wave erosion scar (three to four-feet vertical). Debris consist of old aerosol cans, plastic bottles and cans.

Vegetation consists of sagebrush, fourwing saltbush and what I call foxtail. Rodent holes are primarily prairie dog holes at the base of the sagebrush about six-feet down (vertical) on the downstream face.

We found the outlet pipe completely plugged. However, we could not find the inlet structure; only a depression at its assumed site.
Notes for spreadsheet entry: Condition - P; Inlet, outlet, riprap and rodents.

San Luis Community Dam Section 18

These are my notes which were taken on July 29, 1998. The weather was warm and clear. BLMID - 1753, San Luis Community Dam Section 18, ID No. 20050, built in 1953. The map coverage used was the USGS quadrangle map "San Luis." Dimensions from the worksheet are 15.4' x 820' x 10'.

We started at the right abutment. The 1983 marker was found and it is OK. The dam is made with loamy fill, really fine gravel. The crest is still quite even, although there is heavy natural erosion on the up and downstream faces. Cattle trail allowing erosion downstream groin.

Vegetation consists of large saltcedars around reservoir and on the embankment, two large saltcedars by outlet, sagebrush, and fourwing saltbushes.

There are two outlets: the first pipe is slightly misaligned, and 55-feet to the left is a second pipe completely buried (Gopher city down at the second pipe outlet).

Spillway is poorly defined, it has a low ridge built across it. It needs to be redefined!
Notes for spreadsheet entry: Condition - F; Spillway, inlet, outlet, and saltcedar.

San Luis Community Dam Section 7

These are my notes which were taken on July 29, 1998. The weather was warm and clear. BLMID - 1752, ID No. 20051, built in 1953. The map coverage used was the USGS quadrangle map "San Luis." Dimensions from the worksheet are 10.4' x 476' x 4'.

We started at the right abutment. We found the 1983 marker and pipe of 1953 marker. The crest is no longer aligned or even. At the location of an old cattle trail the crest has lost a foot.

I found a prairie dog hole and a pack-rat's nest on the upstream face. Concerning vegetation, there is Sage and juniper downstream, fourwing saltbush and saltcedar upstream and six to seven 6-7 ft tall fourwing saltbushes. Chico on or near crest. Then toward the left abutment there is more sage upstream. Mr. Chavez found 2 pipes by dowsing (1/3 and 2/3 across dam).

Spillway was eroded from both sides - filled in - then scoured. Has sagebrush. Needs cleaning and redefined and reengineered. I don't think right abutment is supposed to be a spillway but it is scouring. Mostly from natural but will soon be a spillway.
Notes for spreadsheet entry: Condition - P; spillway, inlet, outlet saltcedar and rodents.

San Luis Community Detention Dam

These are my notes which were taken on July 29, 1998. The weather was warm and clear. BLMID - 1522, San Luis Community Detention Dam, ID No. 20052, built in 1951. The map coverage used was the USGS quadrangle map "San Luis." Dimensions from the worksheet are 10.2' x 556' x 5'.

We found the 1983 marker OK. The dam is made with loamy fill and is well rounded from erosion - no longer straight or even on the top. The left abutment has been reworked.

Vegetation consists of Chico, sage, and fourwing saltbush. There are saltcedar on the far side of a moist, grass filled reservoir.

The trash rack is showing through (sticking out of) the cracked mud. The outlet open and clear. There is a 30-inch deep channel (scour) to inlet box.

Spillway has eroded in from sides then scoured hard when used. I suspect spillway channel was altered also. Reshape! Reengineer!

Notes for spreadsheet entry: Condition - P: Spillway, inlet, saltcedar and fourwing saltbush.

Sand Column Tank

These are my notes which were taken on August 14, 1998. The weather was warm and clear. BLMID - 0171, ID No. 00034, built in 1961. The map coverage used was the USGS quadrangle map "Canada Calladita." Dimensions from the worksheet are 16' x 530' x 6'.

We began at the right abutment and found the both markers OK. The crest very crooked; very uneven. There is an old patch in middle. It is weathering different, the vegetation is different. It has rock in fill, and there are straight rivulets down both sides. The embankment is quite clean but evidence of hard erosion. Rodent hole/sink hole in crest above saltcedar. Downstream face has sage on part of it and the upstream face has saltcedar.

Spillway quite clean, but there is erosion from both sides. It is scouring at its outlet (2 feet deep).

Notes for spreadsheet entry: Condition - U (Patched); saltcedar.

BLMID - 0171, Sand Column Tank, ID No. 00034
Picture 1, looking at downstream face and variation of colors in fill, 8/14/98.

Sandoval Dam #4

These are my notes which were taken on July 25, 1998. The weather was warm but overcast. BLMID - 0319, ID No. 20132, built in 1952. The map coverage used was the USGS quadrangle map "Tinian." Dimensions from the worksheet are 13' x 687' x 6'.

We started at the left abutment. Spillway is continuing to erode, the cut is now 3-feet deep and at the water level of the reservoir. It needs reshaping and perhaps raised. Need a massive drop (Energy dissipator) out of spillway.

We found the 1984 marker OK. The dam is made of gravely, loamy, clayey fill. Top of dam very uneven, but still has some shape. I noticed that there is more erosion where there is less gravel in fill. Toward the right abutment, the gravel is gone and there is much more erosion. Gravel seems to be helping stop the downstream rivulets and erosion. The crest loses its shape and becomes completely rounded. One low spot has indication downstream that dam may have overtopped slightly; the high water is with 4-feet (vertical) of crest. At the right abutment the road has caused most of the downstream face to disappear. Wave action erosion on the front face.

Downstream face has lots of green bush, fourwing saltbush and sagebrush. Upstream face from water up is covered with brush - downstream face much less brush.

A 10-feet deep headcut is within 100-feet of toe of dam. Water coming form side walls of draw downstream from dam is feeding the headcut. There is a seep showing up 200-feet below dam; a depression standing full of water. Topography by downstream of dam left three possibilities for outlet structures.

By "dowsing" Mr. Chavez found 3 outlet structures (would say there are 3 CMP pipes through dam). One of the permittees, Mark Costello, came and talked to Mr. Chavez while we were at this dam.

Notes for the spreadsheet entry: Condition - P; Spillway, drop, fourwing saltbush and riprap.

Sandoval Group Dam # 3

These are my notes which were taken on July 24, 1998. The weather was warm but cloudy. BLMID - 0315, ID No. 20136, built in 1952. The map coverage used was the USGS quadrangle map "Tinian." Dimensions from the worksheet are 13' x 43' x 7'.

We started at the right abutment marker bent over and the cap is loose. The crest very eroded. The dam has over-topping damage and a serious patch. It has over-topped in two places; in the center, then further toward the left abutment. The seen to be old toppings because there are plants in the scar. Between the 2 overtopppings is a patch that forms a bulge in the dam. There is a three foot erosional scar upstream and one cattle trail crosses the crest.

Up and down stream faces are clear except 2-3 bushes. Lots of rodents (prairie dogs) particularly upstream at the high water line and in the over-topping scars.

Mr. Chavez said it has a pipe but neither the inlet nor the outlet was found.

Spillway eroding in from sides. Has eroded down in bottom to bed rock and headcut has eroded downstream side.

Notes for spreadsheet entry: Condition - U (patched); Spillway, inlet, outlet, riprap and rodents.

Sandoval Group Dam # 4

These are my notes which were taken on July 24, 1998. The weather was warm but overcast. BLMID - 0051, Sandoval Group Dam #4, ID No. 20137, built in 1952. The map coverage used was the USGS quadrangle map "Tinian." Dimensions from the worksheet are 13' x 370' x 8'.

We started at the left abutment. We found the 1952 marker (Dandoval Dam 2). Water is going over the spillway fairly regularly, it is clean with a sandstone base. Discharge flows have eroded the sandstone floor.

It is a very clean dam. Juniper, sage and Chico with thistle along the high water mark. Two cattle trails have caused erosion along the left abutment. The crest is rounded and the original center-line of dam is gone; it meanders. There is rodent activity around a juniper near center of upstream face of dam. There is a green seepage spot on the downstream toe opposite this juniper. There is a chunk of old CMP pipe on the top of dam. On the upstream face is more rodent activity with one and two-inch holes. There is a cattle trail on the left abutment. We found the 1984 marker OK. Erosion is eating at the outlet of the spillway, the dam needs a drop structure.

Overtopping appears to be happening along the left abutment near spillway.

Notes for spreadsheet entry: Condition - P (I suspect it should be U); Spillway (drop structure), inlet, outlet, Juniper and rodents.

Shelf Rock Dam

These are my notes which were taken on July 17, 1998. The weather was warm and clear. BLMID - 0381, Shelf Rock Dam, ID No. 20102, built in 1954. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 12' x 437' x 7'.

We started at the at the left abutment - loamy clay. Clean dam on the downstream face. Snakeweed and sage on the upstream face. We found the two markers (1984 and 1954). We found the inlet wall and pipe. The pipe is buried about 8-feet below siltation surface. No trash rack. Outlet pipe is covered - but it is in one of those natural stilling basins of unknown depth. Second pipe through downstream berm. Headcut is immediately downstream at downstream side of berm - and threatens berm. We may need a drop structure here.

Sagebrush in spillway - erosion from right (natural) side of spillway. 10-feet deep headcut at lower end of spillway is threatening spillway (we may need a second drop structure here). The headcut at the spillway is not major; but the headcut downstream is. The major headcut is eating at downstream dike in 2 places (maybe 3). There is a natural drainage at right of right abutment which is contributing flows to feed the headcut.

Notes for spreadsheet entry: Condition - P; Inlet, outlet and 2 drop structures.

BLMID - 0381, Shelf Rock Dam, ID No. 20102
Picture 1, channel into the inlet structure. Mr. Kuka is standing in the channel itself, and rod is on inlet box, 7/17/98.

BLMID - 0381, Shelf Rock Dam, ID No. 20102
Picture 2, looking upstream at face of drop structure. Bifurcated headcut and outlet pipe of drop structure, 7/17/98.

Southern Union Section 24 Dam

These are my notes which were taken on July 29, 1998. The weather was warm and clear. BLMID - 1716, ID No. 20048, built in 1952. The map coverage used was the USGS quadrangle map "San Luis." Dimensions from the worksheet are 16.7' x 993' x 7'.

We started at the right abutment. Mr. Beck (1983) found spillway to be 120 feet wide, it has now been filled in and is only 10-12-feet wide! A dike (cross over) is above the spillway. New saltcedar trees growing in fill in spillway. There are older 6-feet deep scars in spillway (I believe failure) which was backfilled to keep the dam holding water.

Found 1983 marker at original right abutment. On top of this right abutment, there has been new fill added for 220'. Also found an old marker, a 1-1/2-inch cap on Rebar at end of fill section. There is a second piece of Rebar sticking out of the new fill. 3/4 way through fill section, the old outlet channel has standing water and is actually running water downstream. There are old saltcedar trees by outlet. Pipe (outlet) remains in place according to Mr. Chavez (dowsing). Inlet works is under water. Lots of saltcedar in reservoir.

Now on the original dam (further toward the left abutment), there are fourwing saltbush. There is a moist weep hole outlet where cross over dike rejoins. Old section is quite clean - snakeweed and fourwing saltbushes, with saltcedar in sediment upstream. Old crest is eroded uneven. It had loamy fill. Old cattle trail has allowed crest to erode away.

Found a 3-feet x 20-feet wide seep hole! It is 240-feet left from the old 1952 marker, which is OK. The left abutment is eroding away. Erosion from 30 feet left to 30 feet right of the pin. Another Rebar marker 80-feet right of pin in crest.

Notes for spreadsheet entry: U (patched and breached); Spillway, outlet, saltcedar and fourwing saltbushes.

BLMID - 1716, Southern Union Section 24 Dam, ID No. 20048
Picture 1, looking downstream at inlet to cavity, 7/29/98.

BLMID - 1716, Southern Union Section 24 Dam, ID No. 20048
Picture 2, looking upstream at outlet of cavity, 7/29/98.

BLMID - 1716, Southern Union Section 24 Dam, ID No. 20048
Picture 3, looking upstream at left abutment and project marker, 7/29/98.

Southern Union Section 25 Dam

These are my notes which were taken on July 29, 1998. The weather was warm and clear. BLMID - 1715, Southern Union Section 25 Dam. ID No. 20047, built in 1952. The map coverage used was the USGS quadrangle map "San Luis." Dimensions from the worksheet are 14.3' x 383' x 10'.

We started at the right abutment. Top is uneven; normal wear and tear over 46 years has resulted in it being badly worn. At 40-feet there are mice holes in crest, and at 120-feet there is a large rodent hole (6-8-inches) in the center of the crest. Mostly fourwing saltbushes, sagebrush, one Juniper (others in groin), and 2 large saltcedars in sediment.

The road passes through the spillway. Spillway needs to be cleaned, reshaped and elevations checked.

The first trash rack is OK. The first inlet box is OK and the inlet pipe is OK and clear. The outlet pipe is 3/4 way buried but OK. At 160-feet is this first outlet pipe crossing. At 185-feet there appears to be an old second outlet pipe. Depression in sediment at inlet. Excess moisture and flow in bottom at outlet.

At 225-feet large saltcedar in upstream toe. Old cattle trail has allowed crest to erode entirely. Lots of fourwing saltbushes both faces but especially in upstream. Smaller saltcedar between inlet pipes in sediment closer to the old outlet.

Notes for spreadsheet entry: Condition - F; Spillway, Inlet, outlet, saltcedar, fourwing saltbushes and rodents.

Split Rock Dam

These are my notes which were taken on July 17, 1998. The weather was warm and clear. BLM ID - 0422, ID No. 20107, built in 1954. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 13' x 665' x 5'.

Spillway is silting in from natural drainage on the left. It needs cleaning and reshaping and perhaps a Gabion wall (sloping). Sagebrush in spillway. Outlet of spillway is scouring and turns down into a lower pond over outlet pipe. Correct by expending 60-feet spillway wall about 200-feet.

It is a very clean dam. Sparse sage on the downstream. Fairly heavy sage upstream with snakeweed. There is a five to six-feet wave action escarpment on the upstream side. The crest shape is gone - completely rounded. On the right side the road across the top is sloped upstream. Inlet trash rack in place (rusting and in some places it has been replaced by Rebar). Drainage from the sediment has formed a three to four-feet headcut to get down to the inlet box - losing sediment, period.

On the right side the sage has been burnt off. On the right side the fill may be layered - there is a definite break in slope about 3-feet down. I found sink holes in sediment with a group of fourwing saltbushes on the other side (downstream). Hard erosion on the downstream side through the groin. We found the 84 marker bent over and only the base of the older marker. At 23-feet from marker there are two holes inline and perpendicular to the crest and another sinkhole.

Notes for spreadsheet entry: Condition - P; spillway, slump and riprap.

BLMID - 0422 Split Rock Dam, ID No. 20107
Picture 1, Mr. Kuka at the natural stilling basin at outlet, 7/17/98.

BLMID - 0422 Split Rock Dam, ID No. 20107
Picture 2, Mr. Chavez at the inlet. Note the three to four foot cut in the sediment behind him, 7/17/98.

Thunderhead Dam

These are my notes which were taken on July 18, 1998. The weather was warm and clear. BLMID - 1354, ID No. 20110, built in 1956. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 14' x 634' x 8'.

We started at the right side. We found the project markers (1984, 1956). The spillway is poorly defined. A six-foot deep headcut has reached the slate/sandstone in the spillway. Water is passing over the wingwall downstream causing a three-foot cut to the downstream berm.

The dam is made with loamy, clayey fill. The crest is uneven and well rounded by 32 years of wear. Right abutment is on a shale/sandstone ridge. Float and outcrop show in upstream face. There is an All Terrain Vehicle (ATV) trail up the downstream face. Rivulets are cutting into downstream face. Shale and sandstone are in fill.

We could not find discharge pipe inlets or outlets. Looking downstream the outlet is completely covered but the grass is greener. There are two possible locations, and the left is more dominant. Cattle trails have eroded the left abutment, but fencing is stopping further passage. The fence lets the cattle water without getting onto the dam. At 90-feet from left abutment a major rill (downstream face) has cut through crest. The crest line no longer looks straight. There is a 6-feet wave action scar. It is old except for top 2-3'. Scar is within 6-feet of crest.

While we were there, two young Native American girls were riding their ATV vehicle up and down the road.

Note for spreadsheet entry: Condition - P; Safety?, spillway, outlet and riprap.

Tinian Tank

These are my notes which were taken on July 24, 1998. The weather was warm but overcast. BLMID - 1372, Tinian Tank, ID No. 20139, built in 1957. The map coverage used was the USGS quadrangle map "Tinian." Dimensions from the worksheet are 13' x 977' x 8'.

Spillway has erosion on the far bank and lots of erosion at its outlet. There is a shooting range in the spillway. Snake grass in spillway and along the high water mark on the upstream face.

We started at the right abutment. We found the 1984 marker whose stem is shot full of holes. Dam is quite clean, but well rounded. The fill is loamy soil. I found a prairie dog hole in the right, downstream groin. I found snake grass on the right downstream face and one Chico bush. On the upstream face there is a 4-feet high wall as result of wave action erosion (the face is essentially gone). An erosional headcut is located downstream, only 30-feet from toe.

By dowsing, Mr. Chavez found pipe locations on both sides of dam which is completely buried. Forty-five feet to the right of the fence is where pipe passes through dam.

Notes for spreadsheet entry: Condition - P; Spillway, inlet, outlet, riprap and rodents.

Tomahawk Detention Dam

These are my notes which were taken on July 18, 1998. The weather was warm and clear. BLMID - 2172, ID No. 20145, built in 1966. The map coverage used was the USGS quadrangle map "Tinian." Dimensions from the worksheet are 12' x 608' x 8'.

We started at the left abutment. Marker was found bent over (1984). Very clean dam, but very rounded. The dam is made with loamy, clayey fill. Manzanita (Chico). Upstream face of dam is gone do to wave action erosion (6-feet deep).

Stand pipe (9-feet from invert) is clean and clear. No lid on the inlet barrel - very little rust. Outlet is open about three to four inches at the top. It has a head wall at the end. It opens into its own made stilling basin. The outlet is about three feet below the sediment.

There is a cattle crossing at the fence. Spillway has erosion marks - needs cleaning and redefined, due to erosion from both sides of the spillway. Erosion from the downstream face and wing wall is bringing a narrow headcut to the right abutment. Spillway erosion (3-feet deep) is drawing a headcut toward spillway about 300-feet downstream. Headcut cutting is in the barrow pit - within 200-feet of downstream toe. Headcut has cut past the headwall for about 95 feet. It is about one foot deep at its end. The left side of the headwall structure is levered out in space. A large headcut is within 10-feet of toe of dam.

On August 14, 1998, I wanted to get a picture of the sever wave action erosion at this dam so we came back. The dam was full of water (no picture of damage) and it does not seem to be working well. I did take a picture of it holding water.

Notes for spreadsheet entry: Condition - P; Spillway, inlet, outlet and drop structure.

BLMID - 2172, Tomahawk Detention Dam, ID No. 20145
Picture 1, looking across crest from left to right, 8/14/98.

Tony Lucero Tank #2

These are my notes which were taken on August 7, 1998. The weather was warm and clear. BLMID - 4123, ID No. 20040, built in 1967. The map coverage used was the USGS quadrangle map "Mesa Cortada." Dimensions from the worksheet are 11' x 540' x 8'.

This was a frustrating experience. It is probably the furthest from Cuba, the county road was washed-out, we took the All Terrain Vehicles (ATV), and the roads have changed from those shown on the map. It took us all morning to get there. We started at the right abutment. This dam has been patched with sediment out of reservoir. The dam is made with loamy, clayey fill - well rounded. The upstream face is clean; on the downstream face there is fourwing saltbush.

The dam has two older patches and then a new patch. Who ever created a new pond pushed the dredged sediment over the dam. The old portion has a prairie dog town. The downstream face is heavily weathered. There is a soil change at the spillway. There is a prairie-dog-town on the crest and left abutment. There is siltation from the sides in the spillway. Mr Chavez found two pipes by "dowsing," on the left side and a second pipe on the right side of the pond.
Notes for spreadsheet entry: Condition - U (Patched); inlets, outlets, fourwing saltbush and rodents.

BLMID - 4123, Tony Lucero Tank #2, ID No. 20040
Picture 1, looking right to left along the crest - displaying sediment pushed over the crest, 8/7/98.

Torreon Peak Retention Dam

These are my notes which were taken on July 18, 1998. The weather was warm and clear. BLMID - 1901, ID No. 20144, built in 1964. The map coverage used was the USGS quadrangle map "Tinian." Dimensions from the worksheet are 10' x 710' x 6'.

We started at the left abutment. We found 1984 marker with bullet holes in pipe. Spillway has erosion into the spillway on both sides. Clean and grassy - needs redefining.

The dam very clean with some sagebrush and snakeweed growing at toe. Upstream there is very severe wave action erosion. Two cow paths; the one closer to center is eroding the crest. The dam is made with loamy, clayey fill; the crest is very-very rounded. There is an old outlet channel below the dam, where I suspect that there once was a pipe.

At 0.1 mile from marker there are 2 sinkholes. One is 2-feet from vertical crest - down hillside. The second is a one foot wide seep hole outlet in the downstream side of the dam 2 feet up from the toe. At the lower sinkhole, Mr. Chavez could stick the stadia rod in about 3 foot. There is a third cattle trail eroding top. Erosion occurring in reservoir; its sides are eroding in. Notes for spreadsheet entry: Condition - P; Spillway, drilling and riprap.

Upstream we looked at two typical smaller structures. The first was a 1964 dam (dike) whose spillway is eroding (we called it "409s"). It would be much help if gabions were shaping spillway. According to the marker that we found, its called Torreon Peak Dike 2. The second one is very similar. It was called, "Torreon Peak Dike 1." It has erosion around the right side and a Gabion structure would help.

Trading Post Detention Dam

These are my notes which were taken on July 24, 1998. The weather was warm but overcast. BLMID - 2249, ID No. 20141, built in 1966. The map coverage used was the USGS quadrangle map "Tinian." Dimensions from the worksheet are 10' x 908' x 11'.

We started right abutment - 1984 marker found bent over (4 wheeling?). Since 1984, there has been a residence built downstream from left abutment/spillway. Somehow this needs to be formally checked out for safety concerns. The house appears to be at lower elevation than spillway - but channel bends around to the right. I would guess that there is no safety hazard, but it needs to be confirmed. The dam is made with loamy, clayey fill. The crest is well rounded with erosion upstream and downstream. On the upstream face is a four-feet high wave-action erosion wall. Vegetation is rabbitbrush, sage, and Chico. Downstream, the rabbitbrush is very thick through the left, middle side of the dam.

The trash rack is in good shape, no surface erosion and clean. Inlet pipe is covered with a hub cap, otherwise clear - but rusting. The outlet is clear. There is a cattle trail to the left of the inlet pipe across the crest. High water mark of the reservoir reaches the spillway. The natural side of the spillway is eroding. The bottom of the spillway is eroding with frequent use.
Notes for spreadsheet entry: Condition - F; Safety, rabbitbrush and riprap.

Trujillo Dam #1

These are my notes which were taken on July 17, 1998. The weather was warm and clear. BLMID - 0359, Trujillo Dam #1, ID No. 20109, built in 1953. The map coverage used was the USGS quadrangle map "Wolf Stand." Dimensions from the worksheet are 17' x 693' x 9'.

We started at the right abutment. Human trash and litter around (bottles, cans). The crest looks level. Dam is very clean (downstream face). Has sagebrush on the upstream face. All along the crest are sink holes. I found at least ten. Upstream there is a four-foot wave-action erosion surface. There is a sink hole close to inlet structure of discharge pipe in sediment.

There is a badger hole in corner of right abutment that runs under the crest to the upstream side. In the wingwall at the spillway is another badger hole downstream whose outlet is across the wingwall. It has a 2.5-feet opening and a one foot diameter hole.

Square base trash rack intact - surface rusting. There is one to four feet of sedimentation above the top of the concrete box. The concrete square box around outlet pipe is open. A small (eight-inch) outlet pipe is open but still has rocks and dirt in bottom of box. There is a second pipe out of concrete box on the opposite side (maybe this box was a pressure release or stilling basin only?). The outlet CMP pipe is wide open at about the level with discharge sill.

We found the both markers OK (1953, 1984). Wide spillway with sagebrush needs cleaning and redefined. The road over the crest is eroding as it exits the left abutment.
Notes for spreadsheet entry: Condition - P; spillway, riprap and rodents.

Turkey Track Detention Dam

These are my notes which were taken on August 13, 1998. The weather was warm and clear. BLMID - 2177, Turkey Track Detention Dam, ID No. 20147, built in 1966. The map coverage used was the USGS quadrangle map "Ojo Encino Mesa." Dimensions from the worksheet are 10' x 963' x 10'.

We started at the right abutment. Sage up and down stream. Prairie dogs on the downstream face. The outlet channel is so silted in that at first we couldn't find top of the lower level headwall. We found the top of the upper headwall exposed about 3-inches. We found the 1984 marker on the left abutment. Spillway has some sagebrush.
Notes for spreadsheet entry: Condition - P; outlet and rodents.

Unknown #FRW4

These are my notes which were taken on August 13, 1998. The weather was warm and clear. BLMID - ????, ID No. 20158. The map coverage used was the USGS quadrangle map "Fire Rock Well." Dimensions from the worksheet are 13' x 452' x 8'.

We started at the right abutment. We found the 5/8/84 marker. On May 8, 1984, Mr Meyerpeter reported the dam appeared to have been repaired. He found lots of surface erosion, sever wave action erosion and that one of the spillways had been blocked. Today we found a ten feet deep headcut has made an end run on the dam. It has completely breached the dam and sediment is washing-out of the reservoir area.

Upstream face has rabbitbrush and some sage. It has two distinct wave action benches. The downstream face sage, rabbitbrush and Chico. The crest is originally brown loamy clay. In the middle of the dam there is white fill.

Left abutment has spillway with a six-feet headcut through it. A 100-feet wingwall needs rebuilt. Dam has one pipe; neither the inlet nor the outlet was found. Found location by dowsing.
Notes for spreadsheet entry: Condition - U; Spillway, inlet, outlet and rabbitbrush.

BLMID - ????, Unknown Fire Rock Wall (FRW) #4, ID No. 20158
Picture 1, looking through the breach downstream from the right abutment, 8/13/98.

BLMID - ????, Unknown Fire Rock Wall (FRW) #4, ID No. 20158
Picture 2, looking downstream from sediment with dark brown blanket, 8/13/98.

BLMID - ????, Unknown Fire Rock Wall (FRW) #4, ID No. 20158
Picture 3, looking across the crest from the left abutment.
Note the white patch material where Mr. Chavez is standing, 8/13/98.

BLMID - ????, Unknown (FRW) #4, ID No. 20158
Picture 4, looking upstream at downstream face, 8/13/98.

BLMID - ????, Unknown (FRW) #4, ID No. 20158
Picture 5, looking at downstream slope across the headcut through the right abutment, 8/13/98.

Unknown #L6

These are my notes which were taken on August 13, 1998. The weather was warm and clear. BLMID - ????, Unknown # Lybrook (L) #6, ID No. 20121. The map coverage used was the USGS quadrangle map "Lybrook." Dimensions from the worksheet are 11' x 444' x 7'.

We started at the right abutment. We found the 1984 marker although it is not in place (concrete and post which had been removed and lying on the downstream face). The dam is made with loamy, clayey fill. To the right the crest is more rounded, has some sign of slight over-topping and has more sage. To the left, the crest is narrower and has more allegator cracks. In the middle (downstream) there is a large stockpile of dirt. Close by there are two big holes on the downstream side of crest. I think that this dam has failed and has been patched. Two wave action benches on the upstream face (one is two-feet and the other is four-feet (vertical) from the sediment). Up and downstream faces have sagebrush.

A new headcut is starting parallel to the crest.

Headcut through original spillway and has been filled in. There is a slight depression on the right side that water is using for a spillway now. Need a wingwall on the left abutment to funnel water into the reservoir.

Notes for spreadsheet entry: Condition - U (Patched); spillway and riprap.

Unknown #SL1

These are my notes which were taken on July 29, 1998. The weather was warm and clear. BLMID - ????, Unknown #SL1, ID No. 20056. The map coverage used was the USGS quadrangle map "San Luis." Dimensions from the worksheet are 8.4' x 340' x 6'.

Juniper and Cholla in spillway - needs cleaning and redefined. Right wall of spillway is just a mound of dirt which needs rebuilt.

Right abutment is against a sandstone mound. The reservoir is full of water with saltcedar upstream at water line. The dam also has Sage, Chico and saltcedar below. There is another isolated saltcedar near left abutment.

There is a 6-inch CMP pipe sticking out of water. We did not find any sign of an outlet. Mr. Chavez found 2 outlet pipe locations by dowsing. The second outlet is by the saltcedar at the left. This dam could have had 2 spillways originally. Found rough hewn 2' x 12-inch planking bolted together like the floor of a "cat walk." I assume that this is the walkway to the monitoring station pictured 11/12/83.

Notes for spreadsheet entry: Condition - P; Spillway, inlets, outlets, and saltcedar.

Uranium Claim Dam

These are my notes which were taken on July 24, 1998. The weather was warm but overcast. BLMID - 2087, ID No. 20143, built in 1960. The map coverage used was the USGS quadrangle map "Tinian." Dimensions from the worksheet are 14' x 458' x 7'.

We started at the at the right abutment. The spillway is eroding from both sides - quite clean.

We found the 1984 marker found in good shape. The dam is made with loamy, clayey soils with large shale rocks. Rivulets (rills) downstream. The crest is rounded and no longer level. There is a seep hole off left abutment and a small 6-inch hole straight into natural terrain. There is wave-action erosion on the upstream face. There are three cattle trails on the left side. Vegetation consists of snakeweed and sagebrush.

The trash rack and supports are rusty. The CMP pipe is rusty and plugged with rocks. The outlet of pipe completely covered.

Notes for spreadsheet entry: Condition - P; Spillway, outlet and riprap.